THE GREEN MIDDLE AGES

Edited by
Claudine A. Chavannes-Mazel
& Linda IJpelaar



The Depiction and Use of Plants in the Western World 600-1600

Amsterdam University Press

THE GREEN MIDDLE AGES
THE DEPICTION AND USE OF PLANTS
IN THE WESTERN WORLD 600-1600

sic ueteris. ymgenda herba betonica.



men herbe uetonice. agrecis dicat apzonitis. alij cestros. cerone. alij indicem. alij colmicen. alij spicotriphos. alij asiriza. alij feropono. alij theriophonon. alij pandona. alij rites. appete hyerocatmae. gallj betonicam. alij serotu talicq betonica appellat. Hec herba betonica nascitur pratis & in montibj locis mūdis & opacis circa fruices. mas hominū & corpora custodit nocturna ambulationes ca sancta & busta & iam uisos timendos & omni rei sancte. s eam mense augusto time ferro & eam que tibi exeunte ne ra suhereat & in umbram facies atq; ita teres cū radicibj carbo aromatico molhissime ī puluere redactam & cū uolue uti sic ueteris. Ad capitis fracturam herba betonica cō & super capud impolita unimus celeritate ghimatū sa ut eo efficacius tercio die refecta idest recentiorem siregū

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AMSTERDAM UNIVERSITY PRESS

Frontispiece
Pseudo Antonius Musa, *De vettonica*, Apuleius Platonicus, Herbarium and other texts,
France, late thirteenth - early fourteenth century.
Dim. 220 x 164 mm. Leiden, UB MS BPL 1283, fol. 1v,
Herba betonica (betony).

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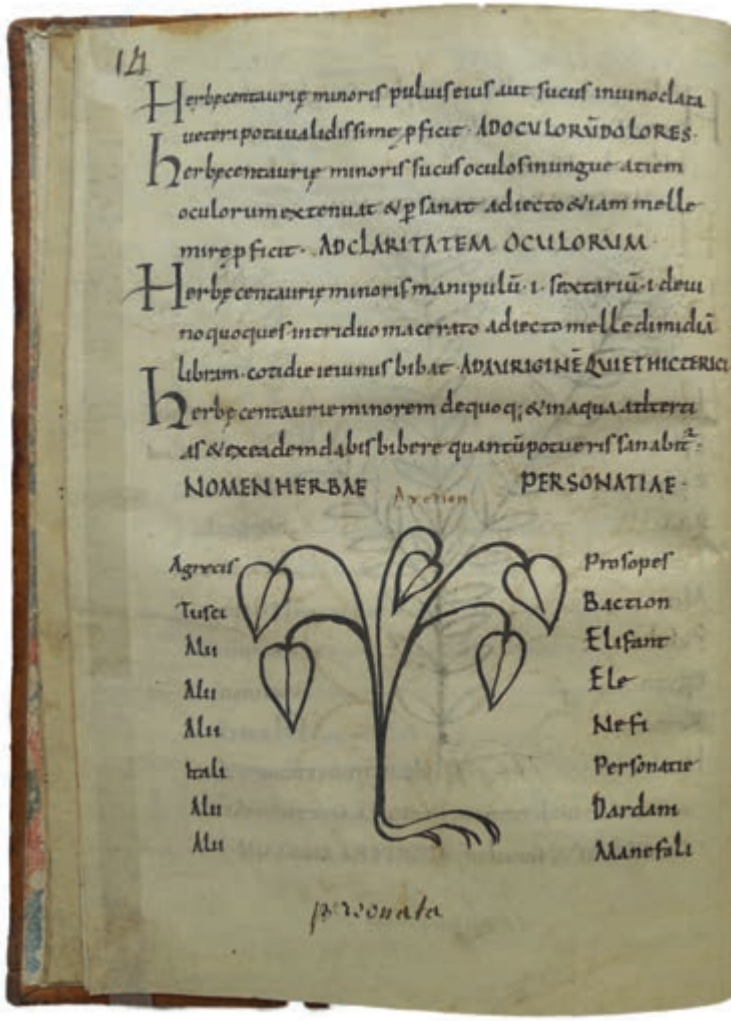
With grateful memory to our teachers
of medieval book science,
Prof. Dr. J. Peter Gumbert and
Prof. Dr. Pieter F. J. Obbema
(Leiden University)

PREFACE

If 'green' was ever a political movement or idea, then now, in the 21st century, it mostly means sustainability. But at some point in history, 'green' simply meant green. One was green without any social, political or economic connotation. In addition to the modern sense of green, the green earth, that is to say nature, had a deific component for the pre-modern inhabitant, since one could not grasp its power. In the twelfth century, the German mystic Hildegard von Bingen added the metaphorical idea of *viriditas*, the potentially 'Divine Healing Power of Green'. The green earth was a generally treasured, indispensable and integrated component of life. Without green, one could not live.

It would appear that as soon as written records started to emerge, people began to document whatever they knew about plants and trees: their limitless uses as food and medicine, scent, pigments for paint or as a dye. Over the centuries in Western Europe, this knowledge has been handed down to us in manuscripts dating back to antiquity, permanently impacting Western thought.

Influential authors of antiquity who wrote about the uses of plants and trees, lived before or around the beginning of the Common Era, centuries before the timespan mentioned in the title of this collection of essays. Supplanting the traditional papyrus roll, the earliest extant books or *codices* dealing with the subject, were written on folia of parchment, sewn into quires. They date from the fifth and sixth centuries. The various authors of this book focus on the period between the sixth century to 1600 and, in particular, on those manuscripts in lesser-known European libraries, universities, museums and private collections, especially those in the Low Countries. Yet, in order to form a more complete presentation, the study of manuscripts in foreign collections was indispensable and together with the more local books, there was plenty of material to open the horizon for a complete overview. The oldest extant manuscript in Dutch collections of the *Herbarium* associated with the name Apuleius Platonicus is preserved at the Leiden University Library. It dates from the late sixth century. The famous *En Tibi* herbarium and the late sixteenth



1.
Apuleius Platonicus, Herbarium and other texts, France, tenth century.
Dim. 235 x 170 (190 x 140) mm.
The Hague, MMW MS 10 D 7, fols. 7v-8r
fol. 7v: *herba personacia*
(*Arctium lappa*? greater burdoc)
fol. 8r: *herba fraga*
(*Fragaria vesca silvestris*, strawberry).

2.
Betony leaf (*Stachys officinalis*), photographed in 2015. Compare to the leaves of betony on ill. p. 2.





century collection of plants preserved in the so-called Rauwolff herbarium at the Leiden Naturalis Biodiversity Centre are equally outstanding. These two sources encompass a period of a thousand years, the timespan that became the period on which the authors decided to concentrate.

The Netherlands owe several of their world-famous manuscripts and early printed books to a handful of book collectors whose heirs and subsequent owners appreciated and preserved them. In 1690, the University of Leiden purchased the collection of books and manuscripts from the estate of Isaac Vossius (1618-1689), the former librarian of Princess Christina of Sweden. Due to some legal complications, when the young university wished to cancel the purchase, it took some time before the crates could be unpacked. Eventually, though, the Leiden University library was enriched with 3,984 books and 728 medieval manuscripts, consequently doubling the library's book collection. The Museum Meermanno-Westreenianum in the Hague, now renamed The House of the Book, holds the collections of medieval manuscripts gathered by Willem Hendrik Jacob of Westreenen of Tiellandt (1783-1848) and his ancestors Gerard and Johan Meerman (1753-1815). Among them is a tenth-century copy of Apuleius Platonicus's *Herbarium* which contains astonishing, almost modern-looking pen-and-ink drawings that are admired by a hand-full of scholars, but are unknown to the audience outside the academic world (ill. 1, p. 6-7).

Almost the same could be said of the medieval books in the Koninklijke Bibliotheek (Royal Library) of the Netherlands in the Hague, collected throughout the years by the princes of Orange and other bibliophiles with an eye for beauty. Since their establishment, the universities of Amsterdam, Ghent and Utrecht have purchased books for their libraries but, unlike Royal Libraries, these universities have been mostly concerned with the contents of the books, rather than their aesthetic qualities. A few years ago, the so-called Draiflessen collection, assembled by a Dutch family, was transferred from Hilversum in the Netherlands to Mettingen, just across the German border. This private trove of books is prized for both its contents and its beauty.

Even though there have been exhibitions, many catalogues published and numerous collections placed online, the manuscripts are still mostly unknown and few of us distinguish them as an indispensable part of our collective world heritage. One of



3.
Dioscorides, *De materia medica*, in Arabic. Samarkand, Uzbekistan, dated Ramadan 475 AH 9 (February 1083).
Dim. 305 x 195 mm. Leiden, UB MS Or. 289, fol. 97r; above cyclamen (*bakhur maryam*), below a vine. This is the oldest extant, dated Dioscorides manuscript in Arabic.

the main goals of the *Green Middle Ages* is to make them known to a wider audience. Many a reader may be astonished as to the unexpected beauty of the illustrations, especially when he or she considers that the manuscript may have been created over a thousand years ago. The first illustration, facing the title page (p. 2), adds another inherent characteristic. It is not drawn on paper, but on parchment (Leiden, UB MS BPL 1283, early fourteenth century). Parchment, made from prepared animal skin, does not usually lie flat. For this reason, the first illustration was explicitly chosen to demonstrate that books are three-dimensional objects, not simply collections of flat pages. A second reason for the choice of betony or *vettonica* is part of the classical tradition. In the *Herbarium* by Apuleius Platonicus from late antiquity, the image is invariably the first illustration in the *Herba vettonica*, a text attributable to the physician of emperor Caesar Augustus. In this manuscript the depiction is far from realistic and, therefore, to us unrecognisable. Characteristic for the period before the thirteenth century, an illustration functioned as a trigger to memory and a visual reference for the accompanying text rather than giving a precise depiction of a plant. Readers of herbaria were expected to know their plants. Here, the details in the portrayal of the plant identify it irrefutably as betony because of its jagged edges and anyone with this miniature in mind who wanders in nature and picks a leaf with this feature, he or she will recognize it as betony (ill. 2).

The *Green Middle Ages* is a series of articles by contemporary scholars of various disciplines, each with his or her own scientific language, interests and vision. The basis for each one of them was the desire to allow the sources to speak for themselves – how were plants used and what formed the foundation of this knowledge. The extant medieval manuscripts form the core of every chapter. The vast majority of their illustrations are published here for the first time.

The book is divided into four distinct parts. Part I deals with the history of plants, the texts and their illustrations gleaned from manuscripts from the late antique period to the collections of dried plants of approximately 1600. Part II discusses the use of plants. Notions of healthy foods were plentiful, but one did not have knowledge yet, of course, of vitamins, cholesterol levels, let alone left-turning yogurt. It was up to the philosophers, both Christian and from antiquity, who searched for balance between man and cosmos and, supported by an equally balanced diet, creating health. Plants were also used for medicinal purposes and theories about their applications abounded. In addition, to this day, plants provide the organic pigments for paints, such as indigo and madder. Do not expect to find any nutritional advice in that part of the book. In Part III we discuss literature, the greenery in romances and poetry, such as the *Roman de la rose* and *Der nature bloeme*, in the Bible and in religious texts such as the *Liber floridus*. In Part IV, we consider the appearance of plants and flowers in the margins of medieval manuscripts. The book ends with two appendices in which the authors invite the reader to enjoy the transcription of two separate texts. Appendix I contains a translation from the Latin *Herbarium* of Apuleius Platonicus's treatment of the healing powers of plantain. Appendix II discusses five plants that occur in the printed version of *Ortus sanitatis*, in the collection of the Atheneum Library of the city of Deventer. The discussion is by a modern-day physician with a thorough knowledge of history and science, who compares recipes from the *Ortus sanitatis* to present-day applications.

Inevitably, choices have had to be made: the reader will find no information about witches, poisons, rituals, medicinal recipes, gardens or decorative plants, not even *hortus conclusus* or *locus amoenus*. Figures like the German mystic and polymath Hildegard von Bingen and the thirteenth century scholastic Bartholomeus Anglicus are only mentioned briefly. Manuscripts from the Arab world, however important, were not considered, but the influence of Arab authors upon the literature of the Western world was definitely recognized. As a tribute to the Arabic version of Dioscorides's *De materia medica*, we have included an illustration of this oldest known text found in the Leiden University Library under the signature Leiden UB MS Or. 289 (ill. 3), dated 1083.

Throughout this book, the reader may learn that for thousands of years plants such as plantain and betony, for example, were viewed as extremely beneficial; according to eleventh-century sources, henbane keeps earwigs away from ears and that a pregnant woman should never step over cyclamen. He or she will realize that for centuries knowledge of plants was transferred into the most gorgeous manuscripts and early printed books and that their images are either astonishingly alienating or surprisingly familiar.

A number of indices are included at the end of the book. The manuscripts and personal registers were relatively easy to compile. Next, there are indices of plants in English, medieval Latin and contemporary Latin. Indices of scientific Latin plant names were compiled by experts Gerard Thijsse and Gerda van Uffelen. They were created in order to avoid the head scratching caused by the numerous plant names used in different regions and countries throughout the centuries for the same plant, or the opposite difficulty, where identical plant names are used for different species. What is, for example, the modern name of a plant named *herba personacia* in a medieval herbarium? And is the *herba personacia* appearing on pages 6, 23 and 30, all the same plant even though they look different? In order to avoid confusion, we have attempted to limit the number of plants to be discussed. We hope the reader will value the quantity of knowledge, which the middle ages have cherished and kept for our future.

Claudine A. Chavannes-Mazel and Linda IJpelaar (eds.)



PART I

CHRONOLOGICAL DEVELOPMENTS: FROM *HERBARIUM PICTUM* TO *HERBARIUM VIVUM*


HERBA
ACRACCISDICITUR

INTRODUCTION

BENEFICIAL PLANTS: PERCEPTIONS AND PRESCRIPTIONS

THE WEB OF WRITTEN AND ILLUSTRATED PLANT BOOKS FROM CLASSICAL ANTIQUITY TO THE INVENTION OF THE PRINTING PRESS

CLAUDINE A. CHAVANNES-MAZEL

Claudine A. Chavannes-Mazel

1. ◂
Apuleius Platonicus, Herbarium, (southern?) Italy, late sixth century
Dim. 270 x 200 mm. Leiden, UB MS VLQ 9, fol. 48v.
Herba camomelon (chamomile).

2. ▷
'Johnson papyrus', Egypt (Antinopolis?), late fourth century. Herbarium fragment, in Greek.
Dim. 227 x 111 mm (at its widest point). London, WL MS 5753.
Recto: possibly *Symphytum officinale*.
Verso: possibly *Phlommos* (*Verbascum*, common mullein).

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600*.
Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_INTRO

Abstract
This chapter introduces a series of articles on the history of the use of plants from 600-1600: not only for food, medicine and pigment, but also as an important place in literature and art. Classical antiquity is the basis for Western knowledge about plants up until the eighteenth century. An influence from Jewish and Arab scholars came with the Salerno School and the University of Toledo in the twelfth century. Thanks to them, the theories of Galen and Hippocrates about the four elements were introduced to Western thought about vegetables and medicine. Medieval manuscripts with information about plants are encyclopaedias, herbaria picta (illustrated plant books) and recipe books. In the sixteenth century, plants dried between sheets of paper were collected in so-called herbaria viva.

Keywords: manuscripts of classical authors, gardens of Asnapium, Treola, Wahlafrid, Sankt Gallen, cook books

From the time that people could read and write, they created different types of texts about plants. There were reference books, what we would today call encyclopaedias, as early as classical Antiquity. These provided information about flora, and were sometimes arranged alphabetically and sometimes according to characteristics. They listed the name of the plant in various languages and explained which part of the plant is useful and what sort of medicine could be obtained from it. They also related how a medicine was made – by grinding, boiling, burning or crushing. This group of reference works included the herbaria or *herbaria picta* as they are called, illustrated plant books, in which the illustrations add to the description of the plant (ill. 1).[1] The illustration was an aide-mémoire, even if the pictorial accuracy was less than reliable, at least until the fourteenth century. Our modern-day plant books are to a certain extent comparable, although the emphasis today is more on how to recognize a plant rather than how to use it. Practical texts like cook books, and instructions for the use of profitable plants – pigments, perfumes, textiles, etcetera – also survive from the Antiquity. A second group of texts concentrated on the meaning of plants in the cosmos, and importantly: explanations of the position of man in the cosmos and how his body can find the ideal balance in that cosmos through the consumption of the appropriate vegetables.

Whoever dares to cast him- or herself into the tangle of pre-Renaissance medieval texts that deal with the benefits of plants and herbs will note the importance given to understanding their world. Is a particular plant edible or poisonous, does it have healing qualities, might it be used as pigment for either painting or dyeing, or does it have multiple uses? From the oral tradition to written texts, authors industriously gathered recipes for the preservation of knowledge for future generations. We owe it to the interests and writing skills of monastics and clergy, who travelled to the courts of European rulers, that texts from Antiquity have been preserved.

Classical Latin was the language of the Roman church and due to Benedictine rule, the clergy could read and write, so monastics could produce and collect books for their own libraries. Respect for tradition and for the authority of the written word, coupled with the cognizance of the perfection of the Creation, ensued that the texts and illustrations were meticulously copied. At the same time, monastics as caregivers and healers added their own practical knowledge of the uses of plants to existing writings. Deliberations on comparable knowledge were also added, thus, in any particular medieval book one might find the writings of several authors, adding many sources, connected to each other with a spider's web of imaginary threads.

In this introduction I examine the long tradition of handing down written knowledge for subsequent generations. At the same time, I will attempt to place the various essays in this book in a broader context.

1. CLASSICAL INHERITANCE AND THE WEST

As mentioned above, the most essential medieval texts on trees and plants stemmed from the classical tradition.





Europe was gifted the Latin heritage, while Greek, Jewish and Arabic knowledge did not make its way into the west until the late middle ages when sufficient translations into Latin started to circulate, followed even later by texts in the vernacular. The oldest surviving documentation consists of recipes for the use of pigments as dyes. Papyrus fragments from Egypt explain the making of pigments from organic and non-organic materials, for example in the so-called 'Papyrus X' in the collection of the Museum of Antiquity in Leiden (see the contribution by Leeflang and Dijkema).[2] Egypt also provides us with the earliest illustrations of plants: the famous 'Johnson papyrus' from the late fourth century CE consists of a sliver of papyrus, illustrated on both sides with an image of a plant (ill. 2).[3] The fragment was discovered in 1904 in Antinopolis and was sold to the Wellcome Library in London in 1928. The Greek texts and images on both recto and verso are too fragmented to identify the plants, but it is possibly *symphitum officinale* (butter bur) on the front or recto (s?μf?t??) and *phlommos (verbascum*, mullein) on the back or verso (f??μμ??).[4] As for how these fragments have anything to do with illustrations in later manuscripts, this is discussed in Chapter 1.

As long as these early texts remained hidden or were unavailable in Latin translation, they found no echo in medieval writings. During the first centuries CE, Roman intelligentsia had knowledge of Greek next to Latin but rarely copied these texts and therefore they did not contribute to the corpus of Greek literature. After the fall of the western Roman empire in 476, any interest in the Greek heritage disappeared.[5] As a result, Greek philosophers and authors such as Aurelius Aesculapius, Aristotle and his pupil Theophrastus did not become generally known until the late middle ages. The Greek physicians Hippocrates (460-370 BCE) and Galen (131-216 CE) formed the foundations of the philosophy of the four temperaments or humors, in which humans are viewed as part of the cosmos. Yet, in the west, it would be centuries before food and medicine would become associated with this philosophy. Theophrastus, Aristotle's pupil, now considered one of the first botanists, was not translated into Latin until 1450. Until then, mere traces of his work may be found in compilations by others.[6] His complete work was simply discovered too late to become part of the corpus of these medieval writings. His fame and those of other Greek authors remained, however, as it was customary for late classical and medieval Latin authors to use the names of famous Greek predecessors in order to lend authority to their own writings, without ever having read the original sources. Quoting them was already sufficient to give their own work weight.

As a native speaker, the Roman author, naturalist and philosopher Pliny the Elder (23/24-79 CE) had an immediate impact. His *Naturalis historia* is a compendium, an encyclopaedia in 37 volumes, without illustrations but containing a wealth of information about nature and the cosmos.[7] A record number of 200 medieval manuscripts – complete or in fragments – of Pliny's compendium survives to this day, proving their popularity. A copy from the eighth century is preserved in the Leiden University Library, noted in taut Anglo-Saxon lettering (ill. 3, Leiden, UB MS VLF 4, fols. 4-33).[8]

PERTUS EURO PE SINUS

Hoc nocenacumis incipit montib;
pontum helli ponto complectentem
pnaestet immones sinus xix xcu
passuum meo eps pro sac. cocynacmac. ce-
tolia: phocis locris accaia: messenia,
laconica: argolicis megaris attice boecia.
tessalum que cebalio macu eadem phocis
& locris donus phtiotis thesaliae. mag-
nesiae. macedoniae. thraciae. omnis que
pabulos trees. sicut & latte nacium claru
tates echoc. primum sinu eppulsit. qua;
propter paulum meo commonebimur.
Epg nos immensum appellatae. accenae;
unus incipit montibus meae primi chae.
ones aequibus chomae. dentes pnot i centi
tonenses locos haemon & pestipenae. cen
bus exclatio. cestrum. pen. aebi. quonum.
mons pindus caesso paeei. chno pes sello.
epilopes molossi capit. quos dodonaei.
lovis templum oraculae. illustrae.
taclarius mons centum pontibus cinc.
nae dices theopompo celebratus epinos
ipsae admagnesiam macedoniam gr ten
dens aterg suo daessaretas supra.
dictos libenam tentem mox penem clau
dunos habe. dandamus laeuo tunc alli
prae tendunt. lateris. & mosicae
gentes appointe. iungunt. medi. ace.
dens elacte. quibus tneces adpontum
usq; pertinentes rae succmae. rhodo
pes mox. & haemi uallatum. excestaes
maepini onae. castellum macno cenae.
unus chimenae. subeo aeg; negiae pons
oppidae. meandriae. cestrud. flumen
thes

butiotum maxime. q; nobilitae
tus ambraecius sinus passuum
paucibus spatiosum aequo acci
piens longitudim sunt. xxx milli
tudinis. tumeum clepentum. annis
achenone. lacu thes pnotiae. ache
rusiae. propluens. xcu passuum inde
mille. pedum ponte. mirabilis
omnae. suae. minantibus misimu oppi
dum ambraciae. molesorum plumae.
epiae. saenarius cuntaes anaectonicae.
laeus paen dosiae. ~

Acarnaniae. maxime. qui antea. ametis noca
barum. oppidae. henaeliae echinus &
mons ipso colomae. augusti acarium
cum templo appollinis nobili acci
tate. liberae. micopolitanae. eches
sos sinu ambraecio minorum excipit
leu cadium litus p montuosum leu
cates clemsinus & leucadiae. ipsae. paen
insulae. quondam nericiis appellatae
opene accolarum ab scis a. continen
ti ae pedditae. uentorum flatu con
tenem haenaenae. ad tumulandum
qui locus nocatum. diocntos stadi
orum longitudine. tunmoppidum
meae leucas quondam neritum dic
tum deinde. acarnanum urbes
alezg aestuarios artos amphilo
chi cum cognominatum amnis ache
lous. epinclo pluens atque acarn
naniam ab[illegible]holiae. diuimens
& antemnariam insulam ad siduo
tenuae muctu continenti adnectens
Aetolorum populi archae maines
thiamphici ephiamenenses. pen.
pinebi dolopes maenaces aetnaces
aequibus aestuax amnis omomanu

3.
Plinius, *Naturalis historia*, parts of Books 2-6. England (Northumbria), first half eighth century.
Dim. 410 x 290 mm.
Leiden, UB MS VLF 4, fols. 4-33, fol. 20v. Beginning of Book

Book 12 of *Naturalis historia* deals with trees and their relationship to the gods. Books 20-33 relate the use of trees, plants and flowers in medicine (see PART II, Chapter 6, the contribution by Chavannes-Mazel on medicine, p. 144 ff.). Some of Pliny's incidental remarks on food and plants may be amusing to us when he, for instance, in his descriptions of the 23 islands along Dutch and German coastal regions focuses on one of the Frisian islands: 'Burcana, which our people (i.e. the Romans), call Bean Island because of a plant that grows abundantly in the wild' (Book 4: 97) – possibly those are tic or field beans, a small type of broad bean.[9] Pliny also claimed that beech nuts make pigs lively.[10] In a different context, he recounts that the Emperor Caligula used 120 *modii* of lentils (about 1,000 litres) as ballast to keep afloat the boats that transported the Egyptian obelisk from Heliopolis. Caligula intended to install the obelisk on Vatican Hill.[11] Pliny ends with a final salute to his vital source: 'Hail thee, Nature, thou Mother of all things!' (Book 37: 205).

The classical legacy: cook books

Thanks to the affluent Roman gastronome Marcus Gavius Apicius, we are familiar with recipes from the first century CE.[12] According to contemporary sources, Apicius was celebrated as a food lover, a veritable gourmet.[13] His fame survived long after his death, partially through a collection of cookery recipes, *De re coquinaria* ('On the subject of cooking') that mention his name, even though it is not apparent that he contributed in any way. In 384, Saint Jerome (*c.* 347-419/420), translator of most of the Bible into Latin, refers to him in two letters to Roman admirers, and Bishop Isidore of Seville was familiar with his name two centuries later when he mentions Apicius's predilection for flamingo tongues and exquisite sauces.[14] Throughout the centuries, the name Apicius continued to be associated with decadent dinners and succulent sauces; he was cited by the Roman poet Juvenal, Boccaccio and later still by Lord Byron.[15]

We owe it to industrious monks from both Fulda and Tours that *De re coquinaria* survives in two ninth-century manuscripts.[16] After the ninth century, Apicius fell into obscurity, until the humanists rediscovered one of these manuscripts in the monastic library of Tours.[17] Subsequently, from the late fifteenth century onward, the cookbook was printed and reprinted many times and today, twenty centuries after Apicius's death, we are still able to look up first-century Roman recipes on the internet.

These earliest known recipes feature a fermented fish sauce, *garum*, that was made with fish, salt and spices. Recipes for legumes, root vegetables and herbs also abound.[18] Book 1 concentrates primarily on ways to preserve fruit and vegetables: 'To preserve apples and pomegranates, plunge them into boiling water, remove them immediately and hang them up to dry' (Book 3, xix, no. 19).[19] Book 3 is devoted entirely to the vegetable garden and includes some simple recipes, such as 'Boiled carrots are served with salt, pure oil and vinegar' (Book 3, xxi, no. 123), 'Roast leeks wrapped in cabbage leaves in hot ashes' (Book 3, x, no. 94), or 'Boiled chard is well served with mustard seed, oil and vinegar' (Book 3, xi, no. 98). Other recipes are more complicated, such as one for an aromatic vegetable soup of lettuce leaves and onions: 'Boil the vegetables in water with baking soda, wring them out and chop finely. In a mortar, grind pepper, lovage seed, celery seed, dried mint, onion, *garum*, oil and wine' (Book 3, xv, no. 105). Some recipes seem disagreeable, such as '*sala cattabia à la Apicius*' that calls for goat sweetbreads covered in snow: '*Insuper niuem sub hora asparges et inferes*' (Book 4, I, no. 126), until we realize that this might a be spelling mistake by the copier, who used the word '*niuem*' or snow when '*vinum*' or wine was intended. A recipe from the first century that was recorded in the fourth century, was copied by hand for several centuries more before it was printed. The letters of the word '*nivem*' are made up of many vertical lines and it is possible that what was actually written in an old copy was '*vinum*' (wine). There was advice for the sick, too: 'Eat the female nettle, when the sun is in the position of Aries against illness, as you wish' (Book 3, xvii, no. 108).[20]

The classical heritage: books on plants and medicine

Books on plants dating from both antiquity and the middle ages were primarily intended for medicinal use. If a plant had no known medicinal purpose it did not deserve a record in an herbarium. As late as 1530 the printer Otto Brunfels reluctantly included the pasqueflower (*Pulsatilla vulgaris* L.) in his *Herbarium vivae eicones,* since it was a plant which was not used by pharmacists and therefore, as an '*herba nuda*' (bare plant), it did not have a Latin name.[21]

Western medicine originated in the Mediterranean through the oral traditions of the native peoples who lived in the vast Roman Empire: southern Europe, North Africa and the Middle East. European monastics wrote down their remedies and prescriptions, supplementing them with Greco-Roman knowledge.[22] Two *herbaria picta* preserved from classical antiquity constitute the tip of a lost iceberg. Both herbaria – *Perì üles iatrichès* (in Greek) by Dioscorides, known by its Latin name *De materia medica*, and the *Herbarium* by the so-called Pseudo-Apuleius or Apuleius Platonicus are encyclopaedic. To us, the remedies within them are not uniformly reliable. Perhaps such instances represent remnants of oral traditions that were given an acceptable platform in this way. What do we do, for example, with the advice to tie a bundle of roots from the plantain under the chin to get rid of a headache (see ill. 5, p. 20 and Appendix I) or to swallow a live mouse to counteract the workings of a potentially deadly poison? Despite

such 'oddities', Dioscorides's *De materia medica* and Apuleius Platonicus's herbarium provide an amazing amount of knowledge still relevant today, even if it would not be advisable to follow every remedy to the letter.

Pedanius Dioscorides: *Perì üles iatrichès (De materia medica)*

De materia medica by the Greek physician Pedanius Dioscorides dates from the first half of the first century CE and may be considered the precursor to all modern pharmacopoeias.[23] It began as a collection of Greek plant lists drawn up by a physician who travelled around in the Eastern Roman Empire around the Mediterranean Sea and aimed to gather new information wherever he went. This project grew into lists of 600 international plants, with more than 2000 applications. Dioscorides drew his knowledge directly or indirectly from earlier writings, such as those by Theophrastus, the physician Crateuas and the Roman writer Sextus Niger, as well as from local, presumably, oral sources and his own experience. He arranged the plants into five books in an idiosyncratic but practical manner: aromatic plants are found in the first book, then animals, plants and herbs, followed by two books on roots, seeds and again herbs. The fifth book deals with wines, grapes and drinks made from other plants, plus minerals and pigments. He noted their healing properties and provided a very modern, systematic index of names. In the introduction, he wrote that he was opposed to an alphabetical arrangement as it would not fit into his system. No illustrations accompanying his text survive from the first centuries CE.[24] Over the course of time and as knowledge increased, an alphabetical version was produced and local plants were added or removed, but the content and corpus remained the standard for western knowledge about plants until 1753, when Carl Linnaeus published his *Species plantarum* in which he introduced the binominal nomenclature, the system of indicating orders, genera and species.

Parts of Dioscorides's Greek text were translated into Latin relatively early, as we know from a comment around the middle of the sixth century by the Latin author Cassiodorus who refers to a Latin translation 'for those who cannot read Greek'.[25] A Latin anthology of excerpts from Dioscorides, *Ex herbis femininis* also dates from the sixth century, from which we may cautiously surmise that a full translation of *De materia medica* was available.

Nevertheless, there is something curious about the western European tradition of Dioscorides's work. Although *De materia medica* is always cited in modern literature as the most influential herbarium from antiquity, the number of extant Latin manuscripts seems to belie that assertion. Whereas we have 200 manuscripts by Pliny, most of them unillustrated, and at least 60 illustrated manuscripts of Apuleius Platonicus's herbarium, the number of extant early medieval manuscripts of the Latin translation of Dioscorides's encyclopedia may be counted on the fingers of one hand. Only four ninth- or tenth-century manuscripts exist, one of which is illustrated with numerous small, almost childish drawings (ill. 6). About ten other manuscripts date from the thirteenth to fifteenth centuries.[26] Unquestionably, Dioscorides restructured the knowledge and study of plants in a new and orderly manner from which a sort of database could be distilled, to the benefit of almost everyone who walked in his footsteps.

Greek and Arabic manuscripts of *De materia medica* are more numerous, including seven dating from the sixth to eleventh centuries. The most famous and most elaborately illustrated is the Vienna Dioscorides, so called because it is now held in the Österreichische Nationalbibliothek in Vienna Ill. 4; (Chapter 1 ills. 1 & 2 p. 36, 38 ; Chapter 6 ill 1, p. 144). In the year 512, it had been presented in Constantinople to the Byzantine princess Anicia Juliana. The following chapters of the Green Middle Ages on illustrations and medicine will further elaborate on this manuscript.

The Herbarium of Apuleius Platonicus, *De herba vettonica* by Antonius Musa and other texts (the so-called Pseudo-Apuleius Complex)[27]

The Herbarium by Apuleius Platonicus (or Pseudo-Apuleius) from the fourth century is always found in compilations with other texts, which suggests that it was used in conjunction with them. Hence its name 'pseudo-Apuleius complex'. It is preceded by *De vettonica*, which was attributed to the Greek botanist Antonius Musa, the personal physician of Emperor Augustus.[28] The attribution proved to be incorrect, but the name Musa is found in almost all of the extant manuscripts. This so-called pseudo Antonius Musa devoted a short monograph to the famous plant vettonica or kestron, known to us as *Stachys officinalis* L. (betony). Today betony is rare in the Netherlands and Scotland, but is still fairly common in England and Wales (ills. 7, 9, 15).[29] In antiquity, it was commonly believed that vettonica could be therapeutic for 47 or even 49 illnesses and that is how it is described in the plant lists from Charlemagne's royal estates of Asnapio and Treola from the early ninth century, as well as in the *Hortulus,* the poem by Wahlafrid Strabo (see below). The herbarium of Apuleius Platonicus is generally followed by two treatises on the use of animals in medicine: *De taxone liber*, a short, anonymous chapter on the badger, and both a short and a longer version of the *Liber medicinae ex animalibus*, attributed to an otherwise unknown physician Sextus Placitus Papyriensis.[30] Next comes an illustrated mixture of excerpts from Dioscorides, *De herbis femininis*, that was almost certainly not compiled by him. This anthology names 71 plants and is based on Dioscorides and, partially, on Apuleius Platonicus and Pliny.[31] Sometimes, this anthology is replaced by *De curae herbarium*, that, like the preceding text, is an anonymous, illustrated compilation from the Latin Dioscorides, but supplemented with Pliny and arranged in a different manner.[32] In addition to these texts, a number of manuscripts include two curious pagan prayers: a prayer to Mother Earth (*Precatio terrae matris*), and a prayer to all plants (*Precatio omnium herbarium*). Some later users appeared to have been annoyed enough by these prayers to erase them.[33]



4.
Dioscorides, *Perì üles iatrichês* , *De materia medica* and other texts in Greek. Constantinople (Istanbul), presented to princess Anicia Juliana in Constantinople in 512, or shortly thereafter.
Dim. 370 x 312 mm. Vienna, ONB Cod. Med.gr. 1, fol. 38v: *Agroostis e epamelootos* (*Cynodon dactylon*: Bermuda grass or scutch grass).

As far as the Herbarium of Apuleius Platonicus is concerned, the anonymous author obtained his knowledge of plants from older writings, in particular the *Naturalis historia* and *De materia medica*.[34] He placed the emphasis on medicinal use and we assume that, initially, its intended reader would have been the well-educated laity. Apuleius has nothing but contempt for the greedy and arrogant quack, as he expresses in no uncertain terms in his introduction (see the translation in Appendix I). In subsequent centuries the readers would have been monastics, for we find numerous copies in medieval monastic libraries. Apuleius's plant book was read all over western Europe.[35] It was a true *herbarium pictum*: for the first time an illustration of a plant became a regular accompaniment to the text.

And so, we see unfolding before our very eyes the lore of herbaria and books on the use of plants from late antiquity to the first printed work in 1481, with illustrations that are occasionally stunning. More than 60 extant manuscripts and several printed editions attest to their great popularity in the Middle Ages and Renaissance.[36]

The first printed edition from 1481 is discussed by Iris Ellers in her contribution in Chapter 2.

2. THE TRANSITION FROM CLASSICAL TO CHRISTIAN KNOWLEDGE

On the fault line between the Classical and Christian worlds: Anthimus's *De observatione ciborum*

In 512, in the same year that princess Anicia Juliana, in the city of Constantinople, received her beautiful copy of Dioscorides's *De materia medica*, the Byzantine physician Anthimus worked at the courts of the Ostrogoth King Theodoric the Great and of the Frankish King Theuderic I. In that year, he wrote a treatise on healthy living and eating, *De observatione ciborum*, that he then offered to Theuderic I.[37] Theuderic's realm included parts of modern-day Belgium, the Netherlands and northern France. On the basis of this text we can develop an idea as to how, in the sixth century, people cooked in this region. Anthimus included a number of recipes and suggestions for the cooking and consumption of fruit and vegetables. Celery, coriander, dill and leeks could be added to any recipe, with the stipulation that leeks must be cooked in advance; fennel, cloves, asparagus, carrots and parsnips were considered to be always healthy. He warns against unripe





5.
Apuleius Platonicus, Herbarium complex, southern Italy (court of Frederick II), first half of thirteenth century.
Dim. 280 x 185 mm. Vienna, ONB Cod. Vind. 93, fols. 18v-19r. *Nomen herbae plantago* (*Plantago*, plantain). On the right, the illustration for the recipe: 'a bunch of plantain tied underneath the chin makes the headache disappear'.

6.
Pedanus Dioscorides, *De materia medica*, southern Italy (Montecassino), tenth-century copy in the script of the dukedom of Benevento.
Dim. 244 x 205 mm. Munich, BSB MS clm 337, fols. 27v-28r: descriptions of plants with illustrations. Fol. 27v: *aljmus* (*Alimus frutex*, sea porcelain), *paljuri* (*Paliurus*, christ thorn), *oxia canta* (*Crataegus oxyacanta*, hawthorne), *cynobatu* (*Fructus cynosbati*, wild rosehip); fol. 28r: *qui pro cyprifolja mastjeatha* (*Cyperus alternifolius?*, papyrus family), *fjilljra* (*Phillyrea altifolia, artifolia* or *angustifolia* or mock privet?), edera (*Hedera*, ivy). Especially rosehip and hedera are recognizable. Oldest surviving complete manuscript in Latin of a Dioscorides text with accompanying illustrations to each plant description.

fruit and uncooked beans as they are not good for the stomach or liver. He argues, without providing a reason, that fish sauce *garum*, a staple in Roman cooking, should be banned from all kitchens.

Anthimus was a practitioner and in his work he establishes that practice is different from theory. Not once does he refer to philosophical treatises or the past, and certainly not to the classical gods. He barely mentions the four temperaments that, based on the writings of Galen, would later form the foundation for an authoritative theory of health. He merely recommends that onions are wet, cabbage be eaten in winter because it produces black bile; garlic and radishes are good for phlegmatic people and for those with a cold stomach. The difference between his writings and plant texts from later centuries is vast. As we shall see, late medieval recipe books apply the theory of the four temperaments, humours and bodily fluids to almost every plant. The philosophy behind temperament theory is that human illness is the result of an imbalance of the body and in order to restore that balance one must administer a medicine that compensates for that deficiency.

Christianity and the Classical Gods

It goes without saying that the Christian world would not recognize pagan gods such as Apollo and Artemis. Instead, it placed their tradition into a fictional historical context without a hint of divinity.[38] This effort, named after the Greek writer Euhemerus who lived in the third century BCE, is called euhemerism which presumes that mythological accounts originated from actual historical events. Consequently, it should come as no surprise to meet the centurion Chiron in illustrations of plants, such as for example in an early ninth-century herbarium, now housed in Florence (ill. 11). According to legend, the goddess Artemis, shown here holding sprigs, gave Chiron two healing plants. He is opening his right hand, ready to receive them. Her gift explains the names *artemisia monoclonos* (*Artemisia vulgaris*, mugwort), *artemisia tagantes* (*Tanacetum vulgare*, tansy), and *artemisia leptofillos* (*Artemisia campestris*, field wormwood) that will be discussed by Jan Willem Briët in Appendix II. Three centuries later, in a twelfth-century copy of an herbarium (London, BL MS Sloane 1975), Artemis again offers her present to Chiron but she no longer looks like a mythological goddess: she is a medieval princess with a crown and a proper long gown, handing two full-leaved plants to a more civilized version of Chiron (ill. 12).

Early Christian writers such as Augustine and Isidore of Seville contributed to the perpetuation of classical knowledge by implicitly declaring Apollo and Aesculapius as historical figures. Heaven and earth meet more often. Conversely, heroes such as Alexander the Great could be given divine status and, later, many Roman emperors did their best to have themselves worshipped as gods.

Isidore of Seville

Isidore of Seville (d. 636) is one of the most crucial links between classical antiquity and the Christian middle ages. He was archbishop of Seville and the author of an imposing encyclopaedia, the *Etymologiae*. In these twenty books, Isidore compiled everything that he considered of value in the classical heritage, a conglomeration of ten centuries of knowledge. Yet, he provides no critical commentary whatsoever. Book 4, *De medicina* from his *Etymologiae*, transports the reader to a very ancient world:

> *Apollo was considered by the Greeks to be the founder of medical science. His son Aesculapius brought the science to great fame, but when he was struck by lightning and died, the science of medicine seems to have been banned and that knowledge disappeared with its creator; it remained buried for almost fifty years until the reign of Artaxerxes, king of the Persians. At that time Hippocrates, a descendant of Aesculapius, born on the island of Cos, brought the art of medicine back to the fore.*[39]

The text makes no mention of a mythological provenance. On the contrary, the reference to the reign of King Artaxerxes establishes it as a precursor to Christian history. Isidore then goes on to explain how Apollo, Aesculapius and Hippocrates created three different schools: the methodological school, the empirical school and the rational school. The book continues with a discussion of the four humours with their life-defining qualities. He describes humours as liquids – *umor* in Latin means moisture or damp. The *Naturalis historia* by Pliny proves to be one of the most important sources for Books 12, 13 and 14, that discuss animals, geography and the universe.[40]

His great authority and influence caused the *Etymologiae* to be one of the most popular, frequently-read books of the Middle Ages. Dante placed Isidore in his *Paradiso*, Boccaccio and

7.
Apuleius Platonicus, Herbarium, Leiden, UB MS VLQ 9, fols. 13v-14r. *Herba vettonica* or betony (*Betonica officinalis*).

8.
Apuleius Platonicus, Herbarium, Leiden, UB MS VLQ 9, fols. 55v-56r. fol. 55v: *Herba centauria minor* (*Centaurium erythraea* Rafn., centaury); fol. 56r: *Herba personacia* (*Arctium lappa*?, greater burdock).

Petrarch referred to him and Chaucer cited him.[41] The *Etymologiae* was read, copied and ultimately printed far into the Renaissance. Between 1472 and 1500 ten different editions were printed. After that time, he was overtaken by authors with a more modern and science-based approach.[42] Nonetheless in 1997, because of his vast knowledge, pope John Paul II declared Isidore of Seville the patron saint of the Internet.

Thanks to the *Etymologiae*, the world view of medieval people continued to follow the classical geocentric pattern in which each individual is a small world, or microcosm, and part of the large universe, or macrocosm. As inhabitants of the earth, individuals occupy the centre of that universe. In *De natura rerum* (612-615), Isidore summarized his views and included beautiful diagrams to visually clarify the relationships between, amongst others, the four elements, temperaments, seasons and the four corners of the world. We find these diagrams in a manuscript dating from about 800 that was written in Salzburg (ill. 13). On the left side of the page we see the four elements of the world depicted in a transparent cube, as three-dimensionally as possible: earth, water, fire and air. On the right, we are presented with the circle of the microcosm. Every modern scholar attempting to explain the temperament theory still, invariably, uses one of the diagrams found in *De natura rerum*. Further explanation of the diagram may be found in Chapter 7 by Johanna Maria van Winter.

Charlemagne and the Carolingian Empire in the ninth century
Emperor Charlemagne (d. 814) partially reorganized Western Europe and imposed Christianity as the sole religion. He used the organizational structure of the Christian Church, the language – Latin – and the script used in monasteries as bases for a worldly managerial network. These decisions had a noticeably stabilizing effect on the hundreds of monasteries and abbeys that exercised control over vast areas. It is consequently of no surprise that the Carolingian monasteries have bequeathed to us a number of major sources on plants: an extensive reference work of medical remedies (the so-called *Lorscher Arzneibuch*), a detailed imaginary map of a cloister garden (St Gallen), lists of plants and trees in the gardens of two large estates (Asnapia and Treola), an ordinance regarding the management of imperial *villae* – including a wishlist of 88 healthy plants to feed a community, and an almost visual, beautiful poem on a small cloister garden, a *Hortulus*. The surprise is that these unique copies have survived for so many centuries. We will treat them *in extenso* in Chapter 5.

The *Arzneibuch* of Lorsch
The Carolingian monasteries, in whose scriptoria classical texts were copied, unquestioningly adopted texts and depictions of mythological figures such as Apollo, Artemis and Chiron, the half man/half horse teacher of Aesculapius. Like Augustine and Isidore of Seville before them, they accepted that the gods had descended into the human realm.

One deeply sensitive issue evolved around the question of whether or not God's creation of living beings was so flawed that people needed to be treated with medicine. Not accidently, we think, an early ninth-century medical book from the monastic library at Lorsch opens with a quotation from Genesis (Gen. 1: 31): 'And God saw everything that he had made, and, behold, it was very good.'[43] The question then remains is whether or not one may interfere in the divine plan. 'Yes', the anonymous author replies in an extensive response, 'healing is an imperative of Christian love for one's neighbour'. It is not just a matter of loving one's neighbour, the compiler of the *Arzneibuch* continues in his detailed argument. There are many passages in the Bible about healing, either through the use of medicinal plants or through divine intervention. Was not Moses commanded by God to throw a stick of wood into the bitter well of Marah, which turned the water sweet and made it drinkable (Ex. 15:22-27)? 'Let he whose faith is weak eat only vegetables', says the apostle Paul (Rom. 14:2) and 'take some wine for the stomach' (I Tim. 5:23). All in all, there are enough arguments for the compiler of the *Arzneibuch* to conclude: 'And therefore learn the healing power of herbs.' He ends his argument with this advice:

> A*nd if you cannot read Greek, there is the book by Dioscorides, who has described with precision the plants in the fields. After that read Hippocrates and Galen's* Therapeutika *in Latin [...] and a number of anonymous compilations of various writers. Read Caelius Aurelianus's* De medicina *and Hippocrates's* De herbis et curis.[44]

The passage is not a recommendation from the monks at the Lorsch monastery itself, but a literal quotation from Cassiodorus, who wrote this advice around the year 550 for the monks of the Vivarium monastery in Calabria, more than two centuries before the *Arzneibuch* was copied in the German monastery of Lorsch, thousands of kilometres away. This example demonstrates how written works were cherished and judiciously copied throughout the centuries.[45]

At the end of the book, we unexpectedly find a transcription of the letter from Anthimus to King Theuderic on a healthy diet, which we mentioned above.[46] The letter's presence here again accentuates that the contents of the *Arzneibuch* are not original, but a compilation of texts. Yet, the book is unique as it is the only remaining copy of hundreds of recipes. It lay more or less undisturbed for 1200 years on the shelf of the









9.
Apuleius Platonicus, Herbarium, France, first half eleventh century. Dim. 258 x 180 mm. Leiden, UB MS VLQ 13, fols. 4v-5r. *Nomen herbae vetonice* (*Betonica officinalis*, betony).

10.
Apuleius Platonicus, Herbarium, southern Germany, 1075-1100. Dim. 265 x 170 mm. Leiden, UB MS VLQ 40, fols. 43v-44r. Left: *herba latirida* (*Daphne gnidium*, flax-leaved daphne); *herba lactuca leporina* (*Chondrilla juncea*, rush skeleton weed). Right: *cucumis silvaticus* (*Ecballium elaterium Rich.*, cucumber) and *cannabis silvatica* (*Cannnabis sativa*, hemp).

monastic library of St. Gallen. In 2013, the manuscript was placed on the World Heritage List and is now protected. It confirms again how important the classical heritage is. Chapter 6 on medicine in the Green Middle Ages deals with the contents of the *Arzneibuch*.

The gardens of Asnapio and Treola, the *Capitulare de villis*, the plan of St. Gall and the poem *Hortulus* by Wahlafrid

In the early ninth century, the inventories of five Charlemagne's estates – *villae* – were transcribed into a small booklet, which is still extant after more than a millennium. Two of the inventories, of Asnapio and Treola, list, in addition to household goods and animals, the garden plants and fruit trees. Together, the two inventories enumerate about forty species of plants (Chapter 5 ills 2 & 3, pp. 130-132). Other than these documents, no trace remains of the two estates. In all likelihood they were located in northern France. Treola was ostensibly known for its wine. Even though grape vines were not included in the inventory, mention is made of 730 *modii* (1 *modius* = 8.73 litres) of 'house wine'.[47]

In the small manuscript that contains the descriptions of Asnapio and Treola, we also find a copy of a *Capitulare de villis*, an ordinance regarding the management of imperial estates. The last chapter incorporates a wish list of garden plants and fruit trees.[48] The list consists of about ninety names of vegetables, garden plants and fruit trees that should be planted in the *villae* to serve various purposes (Chapter 5 ill 4, p. 133). Not only would Charlemagne receive a certain income from the crops from these domains, but both court and army would be able to rely on a food source of dependable products. In addition, the population living on the estates needed to be cared for with a steady supply of food. As is stated in the second line of the *Capitulare*, this should be done: '[S]o that our courts are safe and cannot be plunged into poverty.'[49]

The so-called Plan of St Gall, a famous architectural drawing from the monastery of Reichenau, preserved in the library of nearby St. Gall, shows an imaginary, Benedictine monastic complex (Chapter 5 ill. 7, p. 141). In addition to the abbey church, there are drawings of over forty adjacent buildings, such as stables, kitchens, lodgings for visiting monks, walls, an orchard, fields, workshops and an infirmary.[50] The drawing with its many annotations consists of five sheets of parchment, sewn together, and measures 122 by 77.5cm. One of the inscriptions on the Plan states that it was designed for Gozbert, the abbot of St. Gall (816-837): 'I have drawn this briefly annotated copy of the monastery buildings for you, my dearest son Gozbertus, so that you with your knowledge of affairs can look at it and see how devoted I am.'[51]

Within the walls of this imaginary, ideal monastery we find three gardens: a vegetable garden, an orchard cum cemetery, and next to the infirmary and the building for bloodletting, a medicinal herb garden. The names of the plants and trees in each garden are painstakingly written down. The plants in the small herb garden are arranged in sixteen symmetrical beds while the plants in the somewhat larger vegetable garden are ordered in two neat rows of nine beds each.[52] Chapter 5 by Chavannes-Mazel and Van Uffelen in this book examines the planting of the herb and vegetable gardens in more detail. In addition to the usual apple, plum and pear trees, the adjacent orchard also includes bay, mistletoe, fig, peach and almond trees.[53] The accompanying text reveals the religious-literary background of the writer:

> *Amidst the trees the Cross is always the holiest of the earth,*
> *on which the fruits sense of eternal life;*
> *Around it lie the bodies of departed brothers,*
> *may they achieve eternal life through the radiance of*
> *the cross.*[54]

According to ancient Eastern apocryphal sources, the wood of the Cross was made of the Tree of Life in Paradise, which is why the cross in the middle of the cemetery was considered 'the holiest of the earth'.[55]

The herb garden of St. Gall was so extraordinary that in 842 Wahlafrid Strabo, abbot of the monastery of Reichenau, wrote an ode of 444 hexameters in classical Latin to the garden and its 24 plants.[56] Entitled *De cultura hortorum*, generally known as *Hortulus* – little garden, it was dedicated by Wahlafrid to his teacher Grimaldus, abbot of the monastery of St. Gall: 'That God may let your virtues be forever green and crown you with eternal life.'[57] He lovingly leads the reader along the garden paths and explains the healing power of each of the 24 plants. Through labour and dedication, he has gained experience, he writes, and at the beginning of spring (the Ram) he feels renewed vigour welling up in him:

> *Winter, image of age, who like a great belly*
> *Eats up the whole year's substance and heartlessly*
> *Swallows the fruits of our unstinted labour*
> *Had gone into hiding deep below the earth.*
> *For Spring had arrived and driven him under. Spring,*
> *Source of the world's life and glory of the year,*
> *Had returned, and was wiping away the ugly traces*

Of greedy winter and restoring to ailing fields
Their former loveliness.
A purer air was now beginning to herald
Fine weather. Plants stirred in the zephyr's path
Thrusting out from their roots the slender tips
Which had long lain hidden in the earth's blind womb,
Shunning the frost they hate. Spring smiled
In the leaves of the woodland, the lush grass on the slopes
And the bright sward of the cheerful meadows.
But this little patch which lies facing east
In the small courtyard before my door
Was full – of nettles! All over
My small piece of land they grew, their barbs
Tipped with a smear of tingling poison.
What should I do? So thick were the ranks
That grew from the roots below,
They were like the green hurdles a stableman skilfully
Weaves of pliant osiers when the horses' hooves
Rot in the standing puddles and go soft as fungus.

Not by chance does Wahlafrid end his *Hortulus* with the rose, the flower of flowers, because, together with the lily, she stands for the purest of the Church. If he could, he would spread gold and precious stones around her roots. In the last stanza, he dedicates his work to Mary, virgin and mother, dove, queen and loyal companion: 'Your son consecrated the lily with his word and life, while his death coloured the roses.. Various copies of the *Hortulus* poem have survived (see for example, ill. 5, p. 134). The manuscript dating from the time of Wahlafrid was discovered at the end of the fifteenth century in the monastery of St. Gallen and was enthusiastically printed in 1509 in Vienna. A hundred years later it was stolen from the monastery and sold to the Swedish Gueen Christina. She left it to the Vatican Library after her death.[58]

After the Reforms by Charlemagne

Macer Floridus, allegedly a pseudonym for the French cleric and physician Odo of Meung, wrote in the eleventh century an unillustrated sequel to the *Hortulus* by Wahlafrid Strabo: *De viribus herbarum*, 'on properties of plants'.[59] Unlike Wahlafrid's poem, Macer Floridus's work enjoyed a broad dissemination throughout Europe. His poem is longer: it contains 2269 hexameters in which the properties of 77 herbs and plants are praised. The content is new to the extent that it is not strictly based on classical sources, but weaves classical mythology into its melodious stanzas. And of course, the author is familiar with Pliny, readily copies Dioscorides, Galen and other classical writers and cites Wahlafrid Strabo. In contrast to Wahlafrid and Dioscorides, he adds the degrees of warmth or cold, dryness or wetness for each plant.[60] Plantain, for example, is cold and dry in the third degree, garlic warm and dry in the fourth degree. But in essence, the text does not contribute much to older sources. 'Plantain', Macer Floridus tells us, 'is good for a stomach ache, painful eyes, dog bites and scorpion stings', information which may be found in older texts as well. Interestingly, magical powers of plants are occasionally omitted. For instance, the passage recommending tying plantain under the chin to cure a headache is no longer at the top of the list.[61]

Great scientific importance was attached to the poem, due to the fact that the medical school of Salerno (see below) used it extensively. It was translated early on into English, French and German, and appeared in print as early as 1477.[62] The Leiden University Library has three twelfth- and thirteenth-century copies. None of the Macer Floridus's manuscripts are illustrated.[63]

3. BROADER AND MORE DIVERSE TEXTS FROM CIRCA 1000

Vernacular Manuscripts and Translations from the Arab World

After the Carolingian period, centres of learning gradually moved to Britain and Italy. Aelfric of Eynsham (955-*c.*1012), also known as Grammaticus, was an Anglo-Saxon Benedictine monk, and later abbot, at Winchester. In 995, he wrote a Latin-Anglo-Saxon dictionary that included 200 names of plants and trees.[64] His *Grammar* and *Glossary* are the first sign that the time had come to make written records of oral traditions for a secular reading public. There are some plants he could only have known about from the Bible, such as palm trees or cedars; others were rare or exotic, such as the peach, fig or mulberry, that did not grow on the British Isles of the tenth century. The other Latin names will be recognizable to the modern reader: malva is *hoelêaf* in Anglo-Saxon, ruta *rûde*, petrocilium *petersylige*, saxifraga *sundeorn*, absinthium *wermôd*, plantago *webrâede,* etc. Some of the names in Anglo-Saxon seem almost whimsical: *feferfugje* (*febrefugia* or *Artemisia leptafilius*) and *hennebelle* (*simphoniaca, Hyoscyamus L.,* henbane) for example Chapter 1, ill. 22, p. 51.

The Anglo-Saxon translation of the plant book by Apuleius Platonicus may be considered part of the same trend. It must have been translated around 1000 in Britain, the first vernacular version.[65] If we consider that a Spanish translation appeared only in 2007, a French translation in 2013, a German one in 2015 and, until this day, no Dutch translation exists, such an early vernacular version is extraordinary indeed.[66]

On the continent, almost contemporaneously with the Anglo-Saxon translations, dissemination continued in southern Europe and under the influence of Arabic writings, the famous Salerno School in southern Italy evolved. Benedictine monks in the monastery of Monte Cassino were responsible for this new development. The monastery had a good library and equally important, considered medical care to be imperative. Salerno also had a mild climate to which the sick gladly travelled to be treated. A third positive factor was its geographic location in southern Italy, close to the Greek heritage and in the vicinity of Arabic intellectual centres.

One of the best-known texts from the Salerno School was the *Taqwim al-Sihhah* or *Tacuinum sanitatis* ('Preservation of Health'). Dating from the eleventh century, the *Taqwim al-*

11.
Apuleius Platonicus, Herbarium, southern Italy (Montecassino), early ninth century.
Dim. 235 x 165 mm.
Florence, BML MS Plut.73.41, fol. 23r.
The goddess Artemis (right) offers three medicinal plants to the centaur Chiron. They will be named: *Artemisia monoclonos*, *Artemisia tagantes* and *Artemisia leptafillos*. Artemis and the centaur clearly show their classical heritage, in contrast to the images in ill. 12.

12.
Apuleius Platonicus, Herbarium, England/northern France, last quarter twelfth century.
Dim. 300 x 200 (215 x 150) mm. London, BL MS Sloane 1975, fol. 17v. In the image, upper left, the goddess Artemis offers three medicinal plants to the Centaur Chiron. All three will carry the name Artemisia. The mythological story is visually placed in a twelfth-century setting. Below: *herba lapanum* and *herba dracontea*.

Sihhah by Abu'l Hasan ibn Butlan originated in Iraq. Abu'l Hasan ibn Butlan came from a Christian academic environment in Bagdad. He travelled a great deal in the Middle East, taught at courts and in cities such as Aleppo, and died in Antioch in approximately 1049. His literary sources included Dioscorides's *De materia medica*. Two centuries later his Arabic text was translated into Latin in Palermo or Naples as *Tacuini sex rerum*, or *Tacuinum sanitatis*.[67] The *sex rerum* are the six elements that are essential to general human well-being and food and drink are, of course obvious components. In Chapter 7 of this book, Johanna Maria van Winter considers the Mediterranean influence on western knowledge and the text of the *Tacuinum sanitatis*.

Universities and Courts
Up until the emergence of universities in the twelfth century, monasteries were the only institutions to officially possess any sort of medical knowledge. Monks and nuns knew the





plants in the monastic gardens and could find whatever they needed to know in the monastic libraries. The fourth Lateran Council of 1215 limited the role of monastics as the practice of surgery was prohibited, since this could lead to the death of a patient. They were now allowed to provide therapeutic medical care only. Once the monasteries lost their monopoly on knowledge and the application thereof, and the laity was eager to know more, universities started to fill the vacuum. Both Dioscorides's *De materia medica* and the herbarium of Apuleius Platonicus remained the standard throughout the centuries but, in addition, between 1050 and 1250, new texts were written on the use of plants. In general, they were based on older texts and illustrations or the collective knowledge gleaned from various sources, but it is clear that established texts were read with an increasingly critical eye. Classical texts were no longer seen as unquestionably authoritative. Personal observations were written down and new recipes and prescriptions added.

Rulers and courts employed trained physicians who needed demonstrably practical knowledge. It is interesting to note that Louis IX, king of France, had a female personal physician



13.
Isidore of Seville, *De natura rerum*, Salzburg, ca. 800. Dim. 290 x 190 mm. Munich, BSB MS Clm 14300, fols. 7v-8r. Cube with the four elements of the world and the circle of the micro cosmos.

14.
Tractatus de herbis, Platearius's *De simplici medicina*. London, BL MS Egerton 747, fol. 14r. Illustration of betony with erased text below.



who accompanied him on his last crusade from 1248 to 1250. She bore the title *magistre physica* and was clearly not a member of a religious order, as she later married a pharmacologist in Paris.[68] Educated lay people and an increasing number of learned city dwellers, who might not even have owned gardens, wanted to know how to find the right plants. As a result, new books on medicinal plants appeared, and gradually individuals began to write down their own notes – with or without illustrations – for personal use. In addition, in the late fourteenth century, very condensed but richly illustrated variations of the *Tacuinum sanitatis* came into circulation at the request of the courts of northern Italy, for the reading and visual pleasure of interested wealthy laywomen and -men.[69] Six manuscripts of these superbly illustrated books survive (Chapter 4, ill. 3, p. 114; Chapter 7, ill. 5, p. 172).[70]

Recipes of a different – sometimes more nefarious – nature
Descriptions of plants in herbaria in the later middle ages indicate that they were no longer strictly proposed for medicinal use. In a collection of pharmacological texts, the *Tractatus de herbis* dating from around 1300, we find among the medical prescriptions, recommendations for other daily uses. For instance, an Italian manuscript from the early fourteenth century (London, BL MS Egerton 747) offers cosmetic applications. The two types of *arum* (*iarus* on fol. 48v and *serpentaria* on fol. 93v), or the lily or melon, could be ground and dried, mixed with rose water and subsequently placed in the sun to thicken into a paste. If the paste were to be applied to the skin it would improve its colour and bleach dark spots. Common madder is recommended to dye the hair red (fol. 84v) and women can use marigolds (fol. 30r) to make beautiful, bright-yellow coronets. In other words, it was not just medical practitioners who would find this book useful. The plant illustrations in this manuscript are drawn far more realistically than in earlier manuscripts. Let us compare, for example, the *herba personacia* (ill. 15) with the illustration in the sixth-century manuscript VLQ 9 (ill. 8). The difference is striking and there must be more behind it than simply evolving ideas about the way nature should be represented. It would seem that the name *herba personacia* is given to various different plants, as long as they are large-leaved. In general, the name *action* (Anglo-Saxon), or *Arctium lappa L.* might be identified as burdock, but it can also mean beet or water lily.[71] Consequently, it is quite possible that a different plant is meant in the Apuleius manuscript VLQ 9 than in the Egerton manuscript 747.
An unknown reader of the Egerton manuscript left his own mark to the description of the herb betony. As mentioned before by Anthony Musa, betony (Egerton MS 747, *vettonica*



oia simℓ fac unguẽtũ ⁊ fuppẽ ⁊ ſanabitur
cito. ad uℓ uiſcerũ ſuccus foliorũ barda
ne-cuatũ .i. ⁊ meſſ. ʒ. ii. ſimℓ potui dabis
mir ſanabitur.

Bardana herba ē. q̃ greci uocãt ꝑſapes. alii
uocãt ꝑſonacia. ruſci. baccion. alii. Ele
fantoſis. alii. Elefas. alii. Nefelion. alii
Panefollio. alii. Bardulozem. alii. Rib
raſta. alii. Bardana. Naſcit locis ſolidis
pinguis ⁊ huõsis ⁊ ꝑte circa foſſas. alio
noĩe dr lappa ſuerſa. alii. Lappa maior
hñs magna folia ⁊ florẽ purpureũ. facit
lappa q̃ ſimilatur pomiculi arbꝛe ĩ facit
ſem nigrũ ⁊ lãgũ. Prima cura eiℓ ē o mez
ſũ canis rabidi. radix ipi ⁊ modico ſale
bñ ſtere ⁊ fuppone mir ſanat. ꝺt magn
am febrez ⁊ calorez. foliis ipi adiũge feb
atãtez. calorez ⁊ febrez mitigat et expellit
ꝺt oẽs fetidas. aq̃ ductis. foliorũ eiℓ
ſepe ablue fetidis. ſi ꝑ herba tracta. addito
modico ſalℓ nitri ⁊ aſungia ⁊ picula ⁊ acto

Buxus arbor ē cui lignã eqat ad multus re
bus edificãdis. foliorũ eiℓ ſimilat mirta ⁊
ſem hꝫ rubũ rotũdũ

15.
Tractatus de herbis, Platearius's *De simplici medicina* etc, Italy (Salerno), *c.* 1280-1310. Dim. 360 x 240 mm. London, BL MS Egerton 747 fol. 17v. Left: *herba personacia* (*Arctium lappa*, bardana or greater burdock?), right: *buxus arbor* (buxus).

fols. 13v-14r) protects body and soul and even guards the traveller who sets forth at night. It must be picked in the month of August, but before plucking one should recite the following incantation: 'Betony, first discovered by Aesculapius, I beg you with this prayer, you who is called the queen of all herbs, and who can offer healing for 47 illnesses, I beseech you to help me with what I desire.' A later reader scratched out the final sentence under the illustrations, perhaps not wanting to be a blasphemer or, possibly, because he found it too silly to pray to an herb. On the other hand, he made no objection to the mention of 'Aesculapius' and the 47 illnesses (ill. 14). In both content, illustrations and use, the book is on the threshold of a new world. The illustrations in this manuscript are of a completely different quality. For the first time since classical antiquity, a plant is depicted true to nature. Later manuscripts with similar texts would follow this model.[72]

Other than for nourishment, medicine, perfume or cosmetics, plants potentially had other, sometimes more perverse, uses. Recipes for magic potions and even poisons are found, and everything in-between: love potions, anaesthetics and narcotics were all popular. Pliny indicated that poisons must have been used in certain areas in the first century CE to explain the otherwise incomprehensible victory of the Romans in the region.[73] The written tradition of magical texts and the existence of moralistic treatises such as books with lists of sins and penances underlines that magic was an important element in medieval perception and thought.[74] This is a separate line of study and the literature on that topic is here noted but not dwelled upon.

Cookbooks in the vernacular

Unlike the scholarly herbaria, cookbooks in the late middle ages were not only written in Latin but also in the vernacular, cherished and preserved from generation to generation. Next to quite personal notebooks, copied recipes and gatherings of manuscripts, printed books were part of this group as well and these collections were as popular then as they are now. More than 75 European anthologies have survived, such as *Le ménagier de Paris* (four extant copies, e.g. Paris BN, MS fr 12477); *Le viandier de taillevent* in French (*c.* 1300, e.g. Rome, MS Vaticana Regina 776, fols. 48r-85r); *The Boke of Keruynge* (Cambridge, UL MS Sel.15.19, printed by Wynkyn de Worde, London in 1508); the Neapolitan recipe collection (New York, Pierpont Morgan Library and Museum), MS Bühler 19; and Oxford, MS Douce 257.[75] Fortunately, many of them have been studied, and published in recent years.[76]

The tradition is strong. Of the 175 recipes in Dutch in the Flemish *Het notabel boecxken van cokeryen*, printed by Thomas van Noot between 1510 and 1514 in Brussels, all have purely medieval ingredients. The two exceptions are the recipes for preserved ginger and quinces.[77] There are suggestions for weddings and other events with recipes for 23 pies, 16 large cakes, braised peacocks and chickens. Decent recipes are included for Lent when believers could only eat bread, vegetables and fish.

On account of these sources we learn that kitchen herbs, necessary in Roman times to make *garum*, remained in use throughout the middle ages. The list of vegetables in *Le ménagier de Paris* includes beets, leeks, cabbage, parsley, beans, peas, spinach, lettuce, pumpkins, turnips, radishes, parsnips, carrots, shallots, watercress and garlic. The vegetarian recipes in this book are typical of the time period: simple and not nearly as complicated as the instructions for the preparation of meat and fish. Yet, vegetables were believed to be vital for the treatment of common complaints. In fact, cook books will include information on herbalism, cooking and medicine and it is occasionally hard to determine what the primary purpose of the book was. Also, the theory of the four elements, dry, wet, hot and cold, as applied to vegetables, began to play a role.

The four elements are also essential in Hildegard von Bingen's writings. This influential German Benedictine abbess (1098-1179), famous since the recent feminist waves because of her esoteric approach, will be dealt with in Chapter 6 on medicine. She never actually wrote a cookbook, but her philosophy about nature and healing through holistic and natural means, inspired others to apply her approach to cooking.[78] More cook books are discussed in the contribution by Johanna Maria van Winter (Part II, p. 142).

In summary

The reading public for herbaria in the late middle ages was completely different from that in classical antiquity when literate Romans were the readers. In the early middle ages, monastics formed the only group that had access to the classical tradition and were able to apply it. With the emergence of universities, the new target group was comprised of students, pharmacists and doctors. Finally, cities triggered a hitherto unknown proliferation, thanks to the literacy of the nobility and the wealthy citizenry who used herbaria to potentially improve their own health. They were not merely interested in recipes for cooking or medicine but wished to study herbaria in order to recognize and use a certain plant. The books that have come down to us offer a wonderful insight into the preferences of an ever-changing reading public.

The texts and illustrations selected above form the basis for the contributions to this book. They are an assortment from the material that has been handed down to us from the middle ages and this is, needless to say, in no way comprehensive.

NOTES

[1] M. Collins, Medieval Herbals: The Illustrative Traditions. London/Toronto 2000; W. Blunt & S. Raphael, *The Illustrated Herbal*. London 1979.
[2] E. R. Caley, 'The Leyden Papyrus X: An English Translation with Brief Notes', in: *Journal of Chemical Education* III: 10 (1926), pp. 1149-1166. Most of the recipes in this fragment have to do with inorganic minerals such as lead and tin.
[3] London, Wellcome Institute MS 5753. M.-H. Marganne, 'Les papyrus de médecine grecs d'Égypte', in: *Dossiers histoire et archéologie* 123 (1988), p. 31. For an extensive description and bibliography, see: Richard Palmer, *Catalogue of Western Manuscripts in the Wellcome Library for the History & Understanding of Medicine: Western Manuscripts 5120-6244*. London 1999 (also online) http://catalogue.wellcomelibrary.org/recod=b1947036. There is another group of papyrus fragments from the second century: the Tebtunis herbarium, now Center for the Tebtunis Papyri, The Bancroft Library, The University of California, Berkeley, MSS P. Tebt.II.679 with illustration and P. Tebt. Tait 39-41; M.-H. Marganne, *Le livre médical dans le monde gréco-romain*. Liège 2004, pp. 36-38; G. Hardy & L. Totelin, *Ancient Botany*. Abingdon 2016, p. 114 and fig. 4.2.
[4] Marganne, op.cit. 1988 (n. 3), p. 39. P. Murray Jones, *Medieval Medicine in Illuminated Manuscripts*. London 1988, p. 58.
[5] G. Highet, *The Classical Tradition: Greek and Roman Influences on Western Literature*. Oxford 1967, pp. 1-14, in particular 3-6.
[6] B. Einarson, 'The Manuscripts of Theophrastus's Historia Plantarum', in: *Classical Philology* 71:1 (1976), pp. 67-76. The *editio princeps* dates from 1483: Theophrastus, *Historia plantarum*, translated by Theodorus of Gaza and printed by Bartolomeo Confalionieri in Treviso. See also A. Pavord, *The Naming of Names: The Search for Order in the World of Plants*. New York 2005, Chapter 1, pp. 21-43.
[7] *The Natural History, Pliny the Elder*, trans. J. Bostock, H. T. Riley. London 1855. (also online). A more recent translation is by H. Rackham, W.H.S. Jones & D.E. Eichholz (trans.), Pliny, Natural History. Loeb Classical Library, Cambridge MA 1938-1962, vols. 1-10. Reprinted 1989-1999.
[8] K.A. de Meyier, *Codices Vossiani Latini I: in Folio*. Leiden 1973, pp. 7-8. Next to this early manuscript, the Universiteitsbibliotheek preserves a twelfth-century copy of Pliny's *Natural History*, books I-XXXVII, transcribed in Northern France (MS VLF 12, see De Meyier, op.cit. pp. 1-2)
[9] J. Meerman, *Kleine geschiedenis van de Nederlandse keuken*. Amsterdam 2015, p. 28.
[10] Pliny, op. cit. Book 16 ch. 8: 'The acorn of the beech, when given to swine, makes them brisk and lively, and renders the flesh tender for cooking, and light and easy of digestion.'
[11] Pliny *Naturalis historia* Book 16, Chapter 76: 'It is beyond all doubt that there has been seen nothing on the sea more wonderful than this ship: one hundred and twenty thousand modii of lentils formed its ballast; and the length of it took up the greater part of the left side of the harbour at Ostia.' Also in the English translation of ten volumes from 1949-1954, p. 458. See also http://www.masseiana.org/pliny.htm. L. Casson, *Ships and Seamanship in the Ancient World*. Baltimore/London 1995, pp. 188-189. This book also names *Naturalis historia* Book 16, 76, 201 as the source: '*120 modium lentis pro saburra ei fuere*.' See also: http://www.perseus.tufts.edu/hopper/text?doc=Perseus:text:1999.02.0137:-book=16:chapter=76&highlight=lentils.
[12] Apicius, *Decem libri qui dicitur* De re coqionaria [...] M. E. Milham (ed.), Leipzig, 1969. The Latin text together with an English translation was published in 2006: *Apicius: A Critical Edition with an Introduction and an English Translation*. Eds. and trans. Christopher Grocock and Sally Grainger. Totnes (Prospect Books), 2006
[13] For example Tacitus, *Annales* 4.1 (a certain Sejanus 'had sold his body to Apicius, an immeasurable rake'); Pliny, *Naturalis historia* 8:209 (a method of Apicius's to fatten pigs was to feed them figs and honey which improved the taste of their liver, rather like the way ducks and geese are fattened in some places), 9:30 (on the cooking of red gurnard à la Apicius, who was 'born to enjoy every extravagant luxury'), 10:133 ('a flamingo's tongue is of a superb quality').
[14] Hieronymus, *Epistulae* 29-1 and 33-3, see S. Letsch-Brunner (ed.), *Marcella – discipula et magistra: auf den Spuren einer römischen Christin des 4. Jahrhunderts*. Berlin 1998, pp. 93-94. *Epistula* 33 is addressed to Paula. Isidore of Seville, *Etymologiae* 20.1,1.
[15] Juvenalis, *Scholia vetera* Satire IV, 22; Boccaccio, *Decamerone* Sonnet 95; Byron, *Don Juan*, Canto XV, Stanza 62. See also: J. Usher, 'Apicius, Seneca and Surfeit: Boccaccio's Sonnet 95', in: *Modern Language Notes* 118 (2003), pp. 46-59; H. Power, *Epic into Novel: Henry Fielding, Scriblerian Satire and the Consumption of Classical Literature*. Oxford 2015, pp. 1, 24. Byron, *Vision of Judgment* 46: 'All this is much, and most upon a throne / As temperance, if at Apicius' board / Is more than at an anchorite's supper shown' (https://archive.org/details/in.ernet.dli.2015.184638/page/n309/mode/1up).
[16] Rome, BAV MS Urb.lat. 1146, copied in the monastery of St Martin in Tours around 830 (Facsimile by Trident editore, Bologna 2014), and a manuscript from Fulda (ca. 900), which has been in New York since 1929. See H. Mayo, 'New York Academy of Medicine MS 1 and the Textual Tradition of Apicius', in: F. T. Coulson & A. Grotans (eds.), *Classica et Beneventana: Essays Presented to Virginia Brown on the Occasion of her 65th Birthday*. Turnhout 2008, pp. 111-135. An excerpt from the eighth century is Paris, BNF MS lat. 10318, pp. 196-203. An English version from 1936 on the internet is by Joseph Dommers Vehling, however, the quality of the translation has been questioned. The complete text in Dutch translation by Janiek Kistemaker can be found on the internet: www.apiciana.nl/
[17] One of the Renaissance copies made in Florence is preserved in Florence, Bibl. Laur. Plut. 73.29.
[18] J. M. van Winter, *Van Soeter cokene. Recepten uit de oudheid en middeleeuwen*. Haarlem 1976, p. 9. At the end the author gives 52 recipes ranging from squid with peas from the Roman period to early sixteenth century pies to be consumed during periods of fasting.
[19] Kistemaker, loc. cit. (n. 16), www.apiciana.nl/derecoquinaria/inhoud.html. The Arabic numbers in the following recipes also refer to her website.
[20] March 20-April 20.
[21] O. Brunfels, *Herbarium Vivae Eicones*, vol. 1, Straatsburg 1530, p. 132. A. Pavord, *The Naming of Names: The Search for Order in the World of Plants*. New York 2005, pp. 164-165, ill. 59.
[22] Marganne, op. cit. 2004 (n. 3), passim.
[23] Often considered an herbal, it deals with all three natural kingdoms: plant, mineral and animal. See *Pedanius Dioscorides of Anazarbus, De materia medica*. L.Y. Beck (trans.), Olms, 2005. Published earlier in German: *Das Pedanios Dioskurides aus Azanarbos Arzneimittellehre*. J. Berdendes (trans.), Stuttgart 1902. On p. XVI Beck refutes the general idea that Dioscorides was a doctor in Nero's army. Alison Denham and Midge Whitelegg give a detailed view in 'Deciphering Dioscorides: Mountains or Molehills?' in: *Critical Approaches to the History of Western Herbal Medicine: From Classical Antiquity to the Early Modern Period*, S. Francia & A. Stobart (eds.), (New York) 2014, pp 191-210 esp. 193-194. See also: M. Cronier, *Recherches sur l'histoire du texte du materia medica de Dioscoride*. [Thèse de doctorat Université de Sorbonne EPHE Paris, 2007] (http://www.theses.fr/2007EPHE499D).
[24] W. Blunt & S. Raphael, *The Illustrated Herbal*. London 1979, p. 17. According to John M. Riddle, it did originally include illustrations. He attributes the changes to the shift from papyrus rolls to codex. See J. M. Riddle, *Dioscorides on Pharmacy and Medicine*. Austin 1985, pp. 180-217.
[25] Cassiodorus, *De institutione divinarum litterarum*, cap. 31, 'De monachis curam infirmorum habentibus': 'Quod si vobis non fuerit Graecarum litterarum nota facundia, imprimis habetis herbarium Dioscoridis.' (MPL 070 1146B). For the complete passage see footnote 43, below. Riddle, op.cit (n. 22), pp. 20-27 and 126, gives a different interpretation.
[26] Both Riddle, (J. M. Riddle, 'Pseudo-Dioscorides's *Ex herbis femininis* and Early Medieval Medical Botany', *Journal of the History of Biology*, 14:1 (1981), pp. 43-81 and Collins, op. cit (n. 1), pp. 148-154) cite Munich BSB cod.lat.mon.337 from the tenth century as the only illustrated Latin manuscript before 1200. Later miniatures are found in: Bologna, University Library. MS 138 (104), fifteenth century; Erfurt, Municipal Library MS Amplon. F41, fourteenth century; Copenhagen, Royal Library MS Thott 190-2º, thirteenth century (with various texts, among them parts of

Dioscorides); Paris, Bibl. Nat. MS lat 6821, fourteenth century. Unillustrated manuscripts from the ninth century: Bern, Bibl. de l'école supérieure cod 363; Paris, Bibl. Nat. MS lat 9332 (with fragments in Bern cod A. 91); Paris, Bibl. Nat. MS lat 12995. A total of 13 medieval manuscripts of the Latin text are known. J.M. Riddle, *Dioscorides. Catalogus translationum et commentariorum: Medieval and Renaissance Latin Translations and Commentaries: Annotated Lists and Guides*. Vol. IV, Wahsington 1980. 42 Greek manuscripts have survived, 17 of which with miniatures and 5 with only illustrations and no text; there are 17 Arabic manuscripts, 12 of which are illustrated. See M. M. Sadek, *The Arabic Materia medica of Dioscorides*. Éditions du Sphinx, Québec 1983. In addition: Princeton University Library, Islamic MS Garrett 583h.

[27] Pseudo Apuleius Madaurensis or Apuleius Platonicus (fourth century), the (anonymous) writer, must not be confused with Lucius Apuleius of Madaurus (*c.* 125-*c.* 175), the author of the classical novel *The Golden Ass*. On the name of Apuleius, see Voigts, L. Ehrsam, 'The Significance of the Name Apuleius to the Herbarium Apulei', in: *Bulletin of the History of Medicine* 52:2 (1978), pp. 214-227,

[28] The text is published as: E. Howald and H. E. Sigerist (eds.), *Antonii Musae de herba vettonica liber – pseudoapulei herbarius – Anonymi de taxone liber – sexti placiti liber medicinae ex animalibus* etc., *Corpus medicorum latinorum IV.* Leipzig/Berlin, 1927, pp. 1-11.

[29] http://medicinalherbinfo.org/000Herbs2016/1herbs/betony/; http://wilde-planten.nl/betonie.htm has a good international collection of medieval illustrations of betony.

[30] Both texts have been published: Howald and Sigerist, op. cit. (n. 28), pp. 229-232, 233-286. Collins, op. cit (n. 1), pp. 148-158.

[31] The text has been published in: H.F. Kästner, 'Pseudo-Dioscorides *de Herbis femininis*', in: *Hermes* 31 (1896), pp. 579-636, and idem, 'Addendum ad Pseudo-Dioscorides *de Herbis femininis*' ed. Hermae xxxi, 578, in: *Hermes* 32 (1897), p. 160. Riddle provides the list of manuscripts as well as the text in Riddle, art. cit. (n. 25); Collins, op. cit. (n. 1), pp. 154 ff.

[32] E. Ferraces Rodriguez, 'Las "Curae herbarum" y las interpolaciones dioscorideas and el "Herbario" del Pseudo-Apuleyo', in: *In memoriam Antonio Zampolli. Euprhosyne, Revista de filologia classica* 32 (2004), pp. 223-240.

[33] For instance in Vienna ONB Cod. Vind.93, fol. 9v. An English translation of the prayers is given by Ch. Singer, 'The Herbal in Antiquity and its Transmission to Later Ages', in: *The Journal of Hellenistic Studies* 47:1 (1927), p. 48.

[34] M. Pradel-Baquerre, *Ps.-Apulée, 'Herbier', introduction, traduction et commentaire*. [Diss. Montpellier III] 2013, https://tel.archives-ouvertes.fr/tel-00977562v1; M. Pradel-Baquerre (ed. & trans.), *Herbier, précédé du Traité sur la betoine d'Antonius Musa: D'après del Manuscrit H227, Montpellier*. Montpellier (Savoirs Anciens et Médiévaux 5) 2018.

[35] To facilitate the modern reader, I have gathered together this eclectic mix of medicinal texts under the name: the herbarium of Apuleius Platonicus.

[36] The oldest known manuscript lies in the Leiden University Library in the Netherlands (MS VLQ 9), with illustrations from the late sixth century (ills. 1, 7, 8; ill. 4, p. 36; ill. 4, p. 130). The Leiden University Library also contains a number of codices with the same text from a somewhat later period. From the middle of the eleventh century we find MS VLQ 13 (ill. 9; ill 10, p. 40; ill. 6, p. 133). MS VLQ 40 dates from the late eleventh century (ill. 10; ills. 15, 18, p. 44; ill. 20, p. 46; ill. 7, p. 133; ill. 9, pp. 134-135; ill. 13, p. 138). From the late thirteenth century, the Leiden University Library has MS BPL 1283 (ill. 10, p. 135).

[37] The text has been preserved in a number of medieval manuscripts, the oldest of which are St. Gall, Stiftsbibliothek 762 fols. 217-260 (ca. 800), Bamberg, MS Msc.Med.1 fols. 72-75 (last folia of the Artzneibuch, late eighth century), St. Gall, Stiftsbibliothek MS 878 pp. 352-365 (eleventh century). A modern edition with an English translation was published in 1996: M. D. Grant (ed.), Anthimus, *De observatione ciborum – On the Observance of Foods*. Totnes 1996. The texts cited here are nrs 55, 9, 50, 60, 61, and 62 from this translation.

[38] Seznec, J., *The Survival of the Pagan Gods*, [transl. from French *La survivance des dieux antiques*, London 1940] New York 1953, Chapter 1: 'Euhemerism and Christian Apologetics – Euhemerism in the Middle Ages – The gods as precursors of civilization', etc. See also L. Voigts, 'The Significance of the Name Apuleius to the *herbarium apulei*', *Bulletin of the History of Medicine* 52 (1978), pp. 214-227.

[39] Isidorus, *Etymologiae*, IV, 3. See Barney, S.A., W. J. Lewis, J. A. Beach & O. Berghof (trans.), *The Etymologies of Isidore of Seville,* Cambridge 2006, p. 109.

[40] Barney et al., op. cit. (n. 39), pp. 14-15.

[41] Dante *Divina Comedia* 10. 130-31; Barney et al., op. cit. (n. 39), pp. 24-26: 'The Influence of the Etymologies' and pp. 27-28: 'Editions of the Etymologies and this Translation'; Chaucer, *Parson's Tale* 89 (on true and false penitence), and 552: 'Ther is a maner tree, as Seith seint ysidre, that whan men maken Fir of thilke tree, and covere the coles of With asshen, soothly the fir of it wol lasten A yeer or moore'. See http://quod.lib.umich.edu/c/cme/CT/1:10.2?rgn=-div2;view=fulltext

[42] J. Henderson, *The Medieval World of Isidore of Seville: Truth from Words*. Cambridge 2007.

[43] Bamberg, Staatsbibliothek MS Msc.Med. 1. *Das Lorscher Arzneibuch, Uebersetzung und Einleitung, Faksimile*. U. Stoll, G. Keil et al. (eds.), Stuttgart 1989, fol. 1r.

[44] Bamberg, Staatsbibliothek MS Msc.Med.1, fol. 5r.: 'Quod si vobis non fuerit Graecarum litterarum nota facundia. est liber herbarium Dioscoridis qui herbas agrorum mirabili proprietate disservit atque depinxit. Post haec legite yppocratem atque galienum latina lingua conversos idest tharapeutica galieni adphilosophum glauconem distinata [...]. Deinde caelii aurelii demidicina et hyppocratis de herbis et curis [...].' Compare n. 24.

[45] Cassiodorus informs us incidentally here that there was a Latin translation of Dioscorides. See n. 25 and n. 44.

[46] Bamberg, Staatsbibliothek MS Msc.Med.1, fols. 72r-75r. See above, n. 44.

[47] Wolfenbüttel, Herzog Augustbibliothek MS Cod.Guelf. 254. The inventory of Asnapium is found on fols. 10v-11v, Treola on fol. 12rb: 'de vineis dominicis: vino modios DCCXXX'.

[48] *Capitulare de villis vel curtis imperii*, Wolfenbüttel, Herzog Augustbibliothek, Cod.Guelf. 254, fols. 12v-16r. See for example, M. Bloch, 'L'origine et la date du Capitulare de villis,' in: *Revue historique* 143 (1923), pp. 40-56. See the chapter in this book by Chavannes-Mazel and Van Uffelen, Part II, Chapter 5, ills. 2,3 and 4 on 114-117.

[49] Wolfenbüttel, Herzog Augustbibliothek Cod. Guelf.254, fol. 12v: 'Ut familia nostra bene conservata sit et a nemine in paupertate missa'.

[50] St. Gall, Stiftsbibliothek MS 1092. W. Horn & E. Born, *The Plan of St. Gall.* Berkeley 1979, 3 vols. See also the official website www.stgallplan.org.

[51] 'Haec tibi dulcissime fili cozb(er)te de posicione officinarum paucis examplata direxi, quibus sollertiam exerceas tuam, meamq(ue) devotione(m) utcumq(ue) cognoscas, qua tuae bonae voluntari satisfacere me segnem non inveniri confido. Ne suspiceris autem me haic ideo elaborasse, quod vos putemus n(ost)ris indigere magisteriis, sed potius ob amore(m) dei tibi soli p(er) scrutinanda pinxisse amicabili fr(ater)nitatis intuitu crede. Vale in Chr(ist)o semp(er) memor n(ost)ri ame(n)': I have drawn this briefly annotated copy of the monastery buildings for you, my dearest son Gozbertus, so that you with your knowledge of affairs can look at it and see how devoted I am, and trusting that you will not think that I was too slow in fulfilling your wishes. Do not think, however, that I have drawn this up with the intention of instructing you. I have made this drawing out of love for God and brotherly friendship for you alone. Go well in Christ, always in our thoughts. Amen.' See W. Horn & E. Born, *The Plan of St. Gall*, vol. 3, Berkeley 1979, p. 16.

[52] In Latin: Hic plantata holerum pulchre nascentia uerbant / HORTUS / cepas / aleas / p[o]rros / ascolonias / apium / petrosilium / coliandrum / cerefolium / anetum / lactuca / papauer / sataregia / radices / pestinachas / magones / caulus / betas / gitto: 'Here the edible plants grow in all their beauty: onions, garlic, leeks, shallots, celery, parsley, coriander, chervil, dill, lettuce, various poppies, savory, radishes, parsnips, cabbage, swiss chard, black cumin'.

[53] In Latin: M[alus] uel perarius / prunarius / sorbarius / mispolarius / laurus / castenarius / ficus / guduniarius / persicus / auellenarius / amendelarius / murarius / nugarius.

[54] Inter ligna soli haec semper sanctissima crux est / in qua perpetuae · Poma salutis olent / Hanc circum iaceant defuncta cadauera fratrum / Qua radiante iterum Regna poli accipiant.

[55] For instance the Ethiopian *Book of Adam and Eve* and the Syrian *Cave of Treasure*. The medieval version can be found in the *Legenda aurea* by Jacobus de Voragine. See G. Schiller, *Iconography of Christian Art 2: The Passion of Jesus Christ*. London 1972, pp. 12-13.

[56] Wahlafrid's poem is preserved in a number of manuscripts dating from the ninth century onwards: Rome, BAV MS Reg.lat. 469 fols. 30-39 (*c.* 850); Leipzig, Universitätsbibliothek MS Rep.I. 53 (mid-tenth century); Rome, BAV MS Pal. Lat.1519 (*c.* 1000); Augsburg, Stats- und Stadtbibliothek 2° 133, fols. 46v-58v (fifteenth century); Munich, BSB MS Clm 666, fols. 1-12v (1463), see *Wahlafrid Strabo De cultura hortorum (Hortulus). Das Gedicht vom Gartenbau*. W. Berschin (ed.), Heidelberg 2007.

[57] *Te Deus aeterna faciat virtute virentem / inmarcescibilis palmam comprendere vitae*.

[58] Raef Payne (transl.), Wilfrid Blunt (comm.), *Hortulus Wahlafrid Strabo*. Pittsburgh, PA: 1976, pp. 27-29

[59] Scholars disagree on the author and both the date and place of origin. B. Schnell and W. Crossgrove (eds.), 'Der deutsche 'Macer'. Vulgatfassung. Mit einem Abdruck des lateinischen Macer Floridus ''De viribus herbarum', *Texte und Textgeschichte*, 50, Tübingen, 2003. The Latin text was published in *Macer Floridus de viribus herbarum una cum Walafridi Strabonis, Othonis Cremonensis et Ioannis Folcz carminibus similis argumenti secundum codices manuscriptos et veteres editiones.... recensuit*. L. Choulant (ed.), Leipzig, 1832. Also online: https://ia700807.us.archive.org/4/items/deviribusherbaruoomace/deviribusherbaruoomace.pdf

[60] L. Elaut, 'Para-historisch kommentaar op een berucht farmakologische traktaat: de Macer Floridus', in: *Scientiarum Historia* I (1959), pp. 149-159.

[61] Peculiarly, a bundle of plantain is now linked to contraception in line 234-235: 'Dicunt non nasci scrophas gestantibus eius Radicem collo suspensam, vis sibi tanta est' – 'They say that no babies are born to those who wear a plantain root around their necks, that is how strong its power is.' Could this have been a copyist's error?

[62] The English translation is from the late fourteenth century, see: Macer Floridus, *A Middle English Translation of Macer Floridus De Viribus Herbarum*. G. Frisk (ed.), Upsala 1949, p. 54.

[63] Leiden, UB MS BPL 217 dates from the twelfth century, MSS VLO 78 and BPL 191D are both from the thirteenth century. Regarding the text-only manuscripts by Macer Floridus, see: B. P. Flood, 'The Medieval Herbal Tradition of Macer Floridus', in: *Pharmacy in History* 18:2 (1976), pp. 62-66; W. F. Daems, 'Die Macerglossen in MS 6838A der nationalen Bibliothek zu Paris', in: *Janus: revue internationale de l'histoire des sciences, de la médicine, de la pharmacy et de la technique* 53 (1966), p. 22.

[64] According to Fischer there are 200 names: C. Fischer, *The Medieval Flower Book*. London 2003, p. 12. Harvey includes 75 in his list: J. Harvey, *Mediaeval Gardens*. London 1981, pp. 168-180. Aelfric's Grammar and Glossary were published in 1880 by J. Zupitza and may be consulted online. The plant and tree list are on pp. 310-313. Since 2009, it is also available from MedievalMS as a modern paperback: P. Throop (ed.), *Aelfric's Grammar and Glossary*. See also C. L. White, *Aelfric: A New Study of his Life and Writings*. Hamden 1974.

[65] M. A. d'Aronco, M. L. Cameron (eds.), *The Old English Illustrated Pharmacopeia: British Library Cotton Vitellius C III*. Copenhagen 1998; H. J. de Vriend, *The Old English Herbarium*. Oxford 1984, Early English Text Society O.S. 286. The Anglo-Saxon text has been published with a translation by O. Cockayne (ed.), *Leechdoms, Wortcunning and Starcraft of Early England [...]*, vol. 1, London 1864, pp. 1-248.

[66] L. E. Voigts, 'Anglo-Saxon Plant Remedies and the Anglo-Saxons', in: *Isis* 70:2 (1979), pp. 250-268; A. Touwaide, et al., *Herbolarium et materia medica (MS 296): libro de estudios*. Lucca 2007; Pradel-Baquerre, op. cit. (n. 34); *Apuleius Heilkräuterbuch. Herbarius. Lateinisch und Deutsch*. Zweisprachige Ausgabe von Kai Brodersen. Wiesbaden 2015.

[67] On Ibn Butlan, see: L. I. Conrad, 'Scholarship and Social Context: A Medical Case from the Eleventh-century Near East', in: D. Bates (ed.), *Knowledge and the Scholarly Medical Traditions*. Cambridge 1995, pp. 84-100. A translation of the complete text from Arabic into French can be found in: H. Elkhadem, *Le Taqwim al-Sihha (Tacuinum Sanitatis) d'Ibn Butlan: un traité médical du XIe siècle*. Louvain 1990.

[68] P. D. Mitchell, *Medicine in the Crusades: Warfare, Wounds and the Medieval Surgeon*. Cambridge 2005, p. 19.

[69] A. Bovey, *Tacuinum Sanitatis: An Early Renaissance Guide to Health*. London 2005; C. Hoeniger, 'The Illuminated Tacuinum Sanitatis Manuscripts from Northern Italy ca. 1380-1400: Sources, Patrons and the Creation of a New Pictorial Genre', in: J. A. Givens et al. (eds.), *Visualizing Medieval Medicine and Natural History, 1200-1550*. Aldershot 2006, pp. 51-81.

[70] Paris, BNF MS n.a.lat. 1673 (1380-1390); Liège, University Library MS 1041 (1380-1400; facsimile with commentary published by S. Opsomer, *L'art de vivre en santé. Images et recettes du moyen âge. Le Tacuinum sanitatis [manuscrit 1041] de la Bibliothèque de Liège* s.l. 1991); Vienna, ONB MS Vind.SN 2644 (1390-1400); facsimile publication by D. Poirion and C. Thomasset, *L'Art de vivre au moyen âge*. Paris 1995; Rom Bibl. Casanatense MS 4182 (1390-1400); Paris, BNF MS lat 9333 (1445-1451); Rouen, BM. MS 3054 and Lichtenstein, private coll. (1450).

[71] T. Hunt, *Plant Names of Medieval England*. Cambridge 1989; A. van Arsdall, *Medieval Herbal Remedies: The Old English Herbarium and Anglo-Saxon Medicine*. New York/London 2002, p. 167; P. Anreiter, 'Gallische Pflanzenbezeichnungen in einem frühneuzeitlichen Herbarium', in: P. Anreiter et al. (eds.), *Argumenta. Festschrift für Manfred Kienpointner zum 60. Geburtstag*. Vienna 2015, pp. 35-56 (with bibliography).

[72] M. Collins (introd.) and S. Raphael (list of plants), *A Medieval Herbal: A Facsimile of British Library Egerton MS 747*. London 2003; Collins, op. cit (n. 1), p. 239.

[73] M.A. Jones-Lewis, 'Poison: Nature's Argument for the Roman Empire in Pliny the Elder's Naturalis Historia', in: *Classical World* 106:1 (2012), pp. 51-74. In addition to Greece and Northern Africa, he names Egypt and Pontus. See *Naturalis historia* 5.27, 7.14, 8.93, 11.89, 21.78, 25.123, and 28.30.

[74] S. Page & C. Rider (eds.), *The Routledge History of Medieval Magic*. Abingdon 2019; C. A. Chavannes-Mazel, 'Geheim(zinnige) planten. Rituelen, recepten en remedies in de overgang van de heidense naar de christelijke wereld,', in: M. Hogenbirk & L. Kuitert (eds.), *Schriftgeheimen. Opstellen over schrift en schriftcultuur*. Amsterdam 2017, pp 292-310.

[75] T. Scully, *The Art of Cookery in the Middle Ages*. Woodbridge 1995, p. 24; H. Notaker, *A History of Cookbooks: From Kitchen to Page Over Seven Centuries*. University of California Press, 2017; C. B. Hieatt and S. Butler (eds.), 'Curye on Inglysch', *Early English Text Society, Supplemental Series* 8 (1985): pp. 62-79.

[76] Over fifty medieval cookbooks are on line: http://medievalcookery.com; also: http://www.godecookery.com/how2cook/howto01.htm for a long list of vegetables.

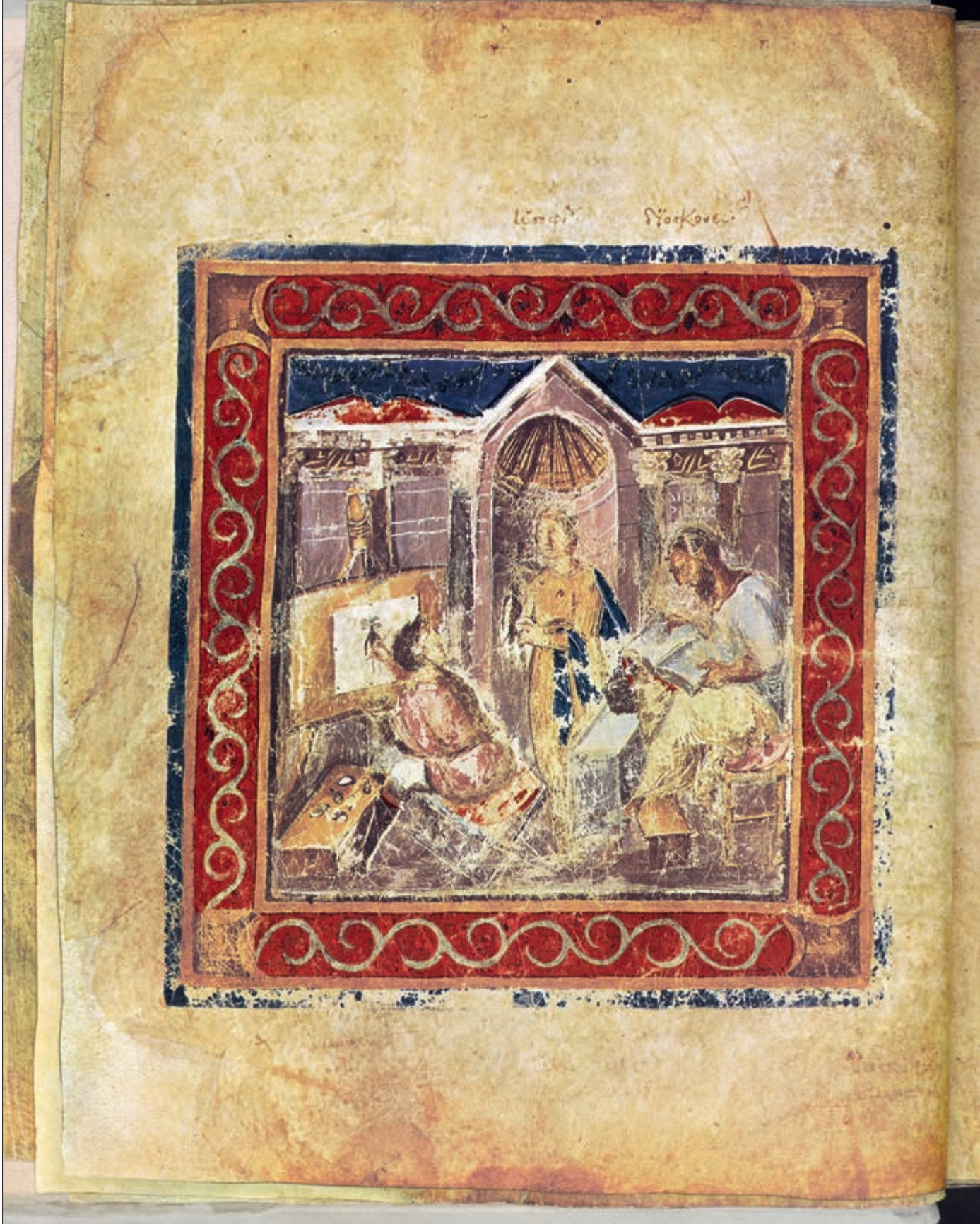
[77] Only one of the printed copies has been preserved and is found in the Bavarian State Library in Munich. It was published in a facsimile edition in 1925; a modern edition is: R. Jansen-Sieben and M. van der Molen-Willebrands (eds.), *Een notabel boeczken van cokeryen*. Amsterdam 1994, which is also available online at http://www.kookhistorie.nl. Fifteenth-century manuscripts in Dutch with recipes for cooking: Ghent, UB 1035, UB 476, KANTL 15 (four texts in one volume). All may be found online. C.A. Serrure (ed.), *Keukenboek uitgegeven naar een handschrift der vijftiende eeuw*. Ghent, 1872 [MS Ghent UB 1035]; for medieval Dutch recipes online, see: http://coquinaria.nl/kooktekst/index.htm. For printed cook books in Dutch collections, see: https://www.kb.nl/themas/geschiedenis-en-cultuur/kunst-en-cultuur/vijf-eeuwen-kookboeken/kookboeken-in-de-zestiende-eeuw.

[78] Augsburg, Universitätsbibl., Cod. III.1.2° 43, fols. 59r-60v. Anita Feyl, *Das Kochbuch Meister Eberhards. Ein Beitrag zur altdeutschen Fachliteratur,* Diss. Freiburg i.Br. 1963; M. Weiss-Amer. '"Physica" of Hildegard Von Bingen as a Source for the "Kochbuch Meister Eberhards"' in: *Sudhoffs Archiv* 76 (1) (1992), 87-96; M. Embach, *Die Schriften Hildegards von Bingen. Studien zu ihrer Überlieferung und Rezeption im Mittelalter und in der Frühen Neuzeit* (Erudiri Sapientia IV). Berlin 2003, pp. 347-353; P. Riethe, 'Hildegard von Bin-

gen “Liber simplicis medicinae” in the Mainz “Garden of Health”’, in: *Sudhoffs Archiv* 89 (1), (2005), 96-119; I. Müller, *Hildegard von Bingen: Physica. Edition der Florentiner Handschrift (Cod. Laur. Ashb. 1323*, ca. 1300), 2008; R. Hildebrandt, T. Gloning (eds. & transls.), *Hildegard von Bingen, Physica: Liber subtilitatum diversarum naturarum creaturarum*. Berlin/New York 2010.

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Claudine A. Chavannes-Mazel (1949) studied Art History and Palaeography/Codicology at Leiden University and earned her Ph.D in 1988. Her dissertation topic was the richly illustrated fourteenth-century encyclopaedia, *Le Miroir historial* that was made for the dauphin of France and is now kept in the Leiden University Library. From 1977-1983, she was part-time teacher of Manuscript Studies and Art History at the Tiele Academy in The Hague (now The Hague University of Applied Sciences). Except for an interval of four years doing research in London, she taught Medieval Art History at the University of Leiden (1979-1983, 1987-1993). In 1993, she was appointed Professor of Medieval Art History at the University of Amsterdam. She has had emeritus status since 2014.



1

FROM COPY TO COPY
1500 YEARS OF PLANT ILLUSTRATION: THE MANUSCRIPT TRADITION

Claudine A. Chavannes-Mazel

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600.*
Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_CH01

Abstract
Except for the famous copy of the Vienna Dioscorides (Vienna, ONB Cod.Med.Gr. 1), most early manuscripts of Dioskorides and Pliny are not illustrated. This is in contrast to almost all extant manuscripts of the herbarium of Apuleius Platonicus (Pseudo-Apuleius complex), which illustrate every plant in the text. Two manuscripts in Dutch collections (Leiden UL MS VLQ 13 and VLQ 40), previously unknown to modern scholars, are given a place in the traditional stemma of Apuleius manuscripts. The miniatures of VLQ 40 are unfinished; by adding VLQ 40 to the Anglo-Norman beta-group, these sketches could be coupled to the completed illustrations of London MS Harley 4986. In the thirteenth century Apuleius became old-fashioned and new texts intended for universities and the learned bourgeoisie received new, at times lifelike illustrations.

Keywords: Function of illustrations of herbals in manuscripts and early printed books

The first mention of plant images dates from circa 75 CE in the form of a remark by Pliny the Elder in his *Naturalis historia*. Pliny gives the reader an unexpected insight into the history of late classical plant illustrations in this following observation on the use and usefulness of illustrations. In Book 25, 4 the author writes:

Crateuas, Dionysius and Metrodorus adopted a most attractive method, though one which makes clear little else except the difficulty in employing it. For they painted likenesses of the plants and then wrote under them their properties. But not only is a picture misleading when the colours are so many, particularly as the aim is to copy Nature, but besides this, much imperfection arises from the manifold hazards in the accuracy of copyists. In addition, it is not enough for each plant to be painted at one period only of its life, since it alters its appearance with the fourfold changes of the year.[1]

This passage allows for a number of remarkable inferences. First of all, that there were authors of herbaria before Pliny. We do know of one of them, Crateuas, the court doctor of Mithridates VI, King of Pontus (120-63 BCE). The quotation also makes clear that illustrated plant books were in circulation. At the same time, it would appear that illustrations in Pliny's time were a novelty. In addition, Pliny points out that illustrations copied by inept miniaturists would become useless after a certain period of time. Finally, he makes the practical observation that plants change according to the season, so what good really is such a picture in the long run?

Pliny lived in the first century CE, a period during which frescoes and mosaics were made with the most beautiful, naturalistic depictions of gardens. Today, the modern-day plant enthusiast still looks at them with admiration: the wall paintings of the garden of Livia in Rome, the beautiful panoramas on the walls of the Villa Poppaea in Oplontis and the



1. ◀
Dioscorides, *Perì üles iatrichès, De materia medica* and other texts in Greek.
Vienna, ONB Cod. Med.gr. 1, fol. 5v. The atelier of Dioscorides. Left: the miniaturist copies a mandrake root shown to him by *Epinoia* (Invention). On the right Dioscorides is seated in profile, writing in a codex.

2. ◁
Dioscorides, *Perì üles iatrichès, De materia medica* and other texts in Greek.
Constantinople (Istanbul), offered to princess Anicia Juliana in Constantinople in 512, or shortly thereafter.
Dim. 370 x 312 mm. Vienna, ONB Cod. Med. gr. 1, fol. 167v. Cannabis.

3. (on page 8)
Dioscorides, *De materia medica*, in Arabic.
Samarkand, Uzbekistan, dated Ramadan 475 AH 9 (February 1083).
Dim. 305 x 195 mm. Leiden, UB MS Or. 289, fol. 97r; above cyclamen (*bakhur maryam*), below a vine. This is the oldest surviving, dated Dioscorides manuscript in Arabic.

mosaics of Pompeii. How could Pliny be so negative about plant illustrations in books?

Aside from the practical arguments mentioned above, Pliny thought that illustrations in plant books were not necessary. Although, today, this may seem like a rather peculiar remark to us, in his time anyone who worked with vegetables and herbs would know his or her plants. Anyone who cooks from a cookbook does not need the illustration of a carrot either. Herbaria were consulted primarily by doctors and healers, and one would hope that they would be familiar with their ingredients. That is why it is perhaps not such a surprise that the oldest manuscripts of Pedanius Dioscorides's *De materia medica* were not illustrated.[2] Pliny is not so much opposed to illustrations, but to unreliable information.

Fortunately, many medieval manuscripts with illustrations of plants have been preserved. But if we consider the reliability of the illustrations, the question does arise in some cases as to their practical applications. Was Pliny perhaps right? Were medieval miniaturists incompetent artists or were they mindlessly copying their sources? In this chapter we will look at plant illustrations from the earliest Christian period until the time of the printed book. It will also look at what happened to the visual tradition of antiquity.

The classical tradition in medieval plant books

Circumstances in western Europe changed with the fall of the Roman Empire. Written knowledge was lost, literacy became less common, and oral traditions took over. The foreword in the first text on plants after the Roman Golden Age, the herbarium of Apuleius Platonicus from the late fourth century, is revealing as the author directs his prologue to '*cives*', fellow Roman citizens, and warns them against all sorts of quackery. He assures the reader that he will only furnish remedies that are proven true (see the translation in Appendix I). Unfortunately, his warning is not original as he copied it from his model, a Latin compendium from the previous century, *De medicina Plinii*. Even though the text is attributed to Pliny, this was not his work. *De medicina Plinii* consists of 1150 recommendations and recipes to take along when travelling, warning the unsuspecting traveller against charlatans who offer worthless medicine at exorbitant prices.[3] In contrast, the herbarium of Apuleius Platonicus was more a reference book and a textbook for those who did not know all their plants by heart. Perhaps that is the reason why *De medicina Plinii*, just as the large *Naturalis historia* by the real Pliny, is not illustrated, whereas almost all extant copies of the herbarium of Apuleius Platonicus from the sixth to the sixteenth century include illustrations.[4] A number of the most beautiful copies still extant are found in libraries in Austria, England, Germany, Italy and the Netherlands.

The Vienna Dioscorides from around 512

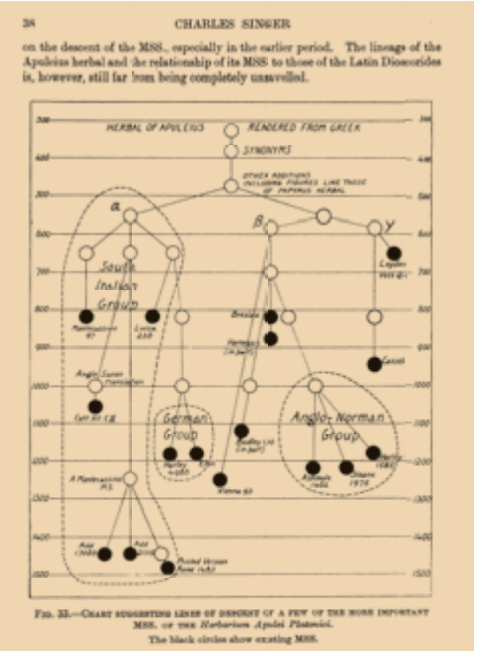
First of all, we must look at the most famous, most spectacular plant manuscript of all: the Vienna Dioscorides *De materia medica*, preserved in the Austrian National Library in Vienna, under the signature Codex medicus graecus 1. The manuscript is stunning; it measures 380 by 310 millimetres and contains 492 folia, or 984 pages, with 383 full-page plant illustrations. In addition to plants, it includes 66 illustrations of poisonous animals, 23 of birds and a full-page miniature of 24 birds grouped together (fol. 483v).

This impressive work did not come into being by happenstance. The manuscript was copied and illustrated in Constantinople as a gift for the imperial Byzantine Princess Anicia Juliana, the devout patron of the Maria church in the city quarter of Honoratae (Pera). It was she who was responsible for the church's foundation and financing. The book was finished in 512 or 513 and presented to her with great ceremony.[5] Subsequently, the work shared the fate of the city and fell into western hands in 1204 as war booty, to be returned in 1261. Various Greek monks and scholars provided it with commentaries or copied large sections to add to their own libraries. After the fall of Constantinople in 1453 it was used by Arab doctors, as evidenced by the many annotations in Arabic, Persian and Turkish. Finally, in 1569 the Austrian ruler obtained the manuscript for the imperial court library for one hundred gold ducats. It came into the Western world at exactly the right moment: German printers were looking at that time for beautiful, naturalistic illustrations of plants and found a supreme example in the miniatures of the Vienna Dioscorides. From that time on, Western humanists and botanists presented themselves at the Viennese court to admire the manuscript personally. A modern facsimile has made it available to a much larger public.[6]

To immediately recognize a plantain in an early sixth century illustration can be startling (Chapter 6, ill. 1, p. 144). The cannabis will also be familiar to many (ill. 2). Even though different miniaturists worked on the Vienna Dioscorides, almost every illustration of any given plant produces the same extraordinary shock of recognition. It is as if fifteen centuries can be seamlessly bridged.






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on the descent of the MSS., especially in the earlier period. The lineage of the Apuleius herbal and the relationship of its MSS to those of the Latin Dioscorides is, however, still far from being completely unravelled.
HERBAL OF APULEIUS
RENDERED FROM GREEK
SYNONYMS
α
β
γ
South Italian Group
German Group
Anglo-Norman Group
Fig. 33.—Chart suggesting lines of descent of a few of the more important MSS. of the Herbarium Apuleii Platonici.
The black circles show existing MSS.

4.
Apuleius Platonicus, Herbarium, (southern?) Italy, late sixth century. Dim. 270 x 200 mm. Leiden, UB MS VLQ 9, fols. 70v-71r. *Herba sinfitos* (*Symphytum officinale*, common comfrey): and *herba leporis pes* (*Geum*, Avens).

5.
Apuleius Platonicus, Herbarium, France (Loire region), second half ninth century. Dim. 285 x 210 mm (page dimensions before the fire). Kassel, UB 2o MS phys. et hist. nat. 10, fol. 14v. Above: Herba sinfitos (Symphytum officinale, common comfrey). Compare to the Papyrus Johnson fragment (ill. 2, p. 15). Below: *herba asterion* (*Aster amellus*, aster).

6.
In 1927, Charles Singer made a *stemma* (the relationship between text and its various manuscript versions) of the most important surviving manuscripts of Apuleius Platonicus's herbarium.

The exceptional care that the miniaturists devoted to the illustrations becomes evident in one of the opening illuminations (ill. 1, p. 36). On the right, we see the author Dioscorides engrossed in a voluminous book open on his knees, while on the left the artist sits on a stool alongside a number of shells filled with freshly mixed paint. Is it the author Crateuas whom Pliny names as his predecessor and who was the originator of plant illustrations? In front of him is an artist's easel on which a sheet is pinned with ancient tacks. The easel, still in use today in almost identical form, seems to connect us to the painter's time. He looks over his right shoulder at *Epinoia*, the personification of inventiveness and human thought. *Epinoia* is holding up a root as a model, the mandrake, the most mysterious classical plant that even in modern times fascinated Harry Potter and his classmates.[7] On the artist's easel, the root has become anthropomorphic as it has taken on a human form. By this, the miniaturist wanted to emphasize that he has drawn true to life, thus claiming the utmost legitimacy for his images. It is the oldest illustration of an artist's studio, and the utensils would have looked exactly the same throughout many centuries.

To avoid misunderstanding: the Vienna Dioscorides was written in Greek. Together with other Greek and Arabic illustrated manuscripts the codex bears witness to the great popularity of Dioscorides in the East as evidenced by the 42 Greek and 17 Arabic surviving manuscripts. As an example, we mention here a beautifully illustrated Arabic manuscript from either Iran or Afghanistan that is now found in the Leiden University Library in the Netherlands. It bears the date of Ramadan 475, that is to say February 1083 (Preface, ill. 3, p. 8),[8] making it the oldest dated Arabic Dioscorides manuscript to be preserved. The multi-coloured plants are depicted lavishly yet almost unrecognizably. The cyclamen depicted on fol. 96v is clearly a bulbous plant, and the leaves are correctly shown as radical and heart-shaped, but aside from these characteristics the drawing was either the product of the artist's imagination, or betrays his lack of skill.

The Greek text was translated into Latin in the sixth century by an unknown author although parts of it had been translated earlier. The manuscripts in Latin are completely different and above all, rare as no more than a handful of manuscripts from before 1200 have come down to us. Three of these are unillustrated.[9] The fourth, a tenth-century Beneventan manuscript, now found in Munich, has many illustrations but completely lacks the articulation of the eastern copies (Foreword ill. 3, p 8, Introduction, ill. 6, p. 20), even though it is generally believed that a relationship can be seen with the Greek illustrations.[10] To the end of the Middle Ages, there are no more than five Latin Dioscorides manuscripts with miniatures. For an overall view of medieval plant illustrations, consequently, we must turn to texts other than the one by Dioscorides.

The manuscripts of Apuleius Platonicus's *herbarium*

The oldest extant manuscript, Leiden VLQ 9

The only text to be consistently illustrated throughout the centuries is the herbarium of Apuleius Platonicus. It seemed to have had a monopoly on plant illustrations until the halcyon days of the School of Salerno in the thirteenth century. We should note here an important detail about manuscript composition because in medieval manuscripts, the herbarium of Apuleius Platonicus is always combined with other medical texts on plants and animals, known by modern scholars as the Pseudo-Apuleius complex.[11] Thus, such a book is a compilation of texts, rather than just the individual herbarium of Apuleius Platonicus with its 130 or 131 plants. For convenience sake, I refer to these compilations of texts under the heading of the Herbarium of Apuleius Platonicus.

The Leiden University Library holds the oldest, and most famous, albeit incomplete, manuscript of the Apuleius Platonicus herbarium. It is catalogued under the signature Vossius Latinus Quatro 9, that is to say, part of the seventeenth-century Vossius collection, quarto format series, number 9. It was written and illustrated in the late sixth century in southern Italy.[12] It made such an overwhelming impression on me as a student that it led to my dissertation on medieval manuscripts. The script of VLQ 9 is a regular uncial, the normal book script used in the late antique to early Christian period, and it may be considered as the forerunner of the ninth-century Carolingian miniscule, our modern-day type face (see Appendix I). The manuscript bears witness to 1500 years of the history of the book.

Just as in the case of the Vienna Dioscorides, the miniatures of VLQ 9 demonstrate a stylistic connection with late classical art. That is why they are generally cited as the bridge between old and new. The content is strictly organized as the illustrations invariably precede the text (Ill. 4; Introduction,

7.
Apuleius Platonicus, Herbarium, Kassel, UB 2o MS phys. et hist. nat. 10, fol. 40r. *Herba vetonica* (*Betonica officinalis*, betony).

8.
Apuleius Platonicus, Herbarium, Kassel, UB 2o MS phys. et hist. nat. 10, fol. 8r. *Herba personacia* (*Arctium lappa*, greater burdock?). The snake above belongs to the description of the previous herb (*Centaurium*).

9. ▷
Apuleius Platonicus, Herbarium, southern England/northern France, *c.* 1145-1158. Dim. 215 x 155 (165 x 115) mm. London, BL MS Harley 1585, fol. 14r. *Betonica* (*Betonica officinalis*, betony).

ill. 1, p. 12, ills. 7, 8 p. 23; Chapter 6, ill. 4, p. 149; Appendix 1, pp. 302-307). A list of names of the plant, as it is known in various regions, follows and, finally, there is an explanation of how certain illnesses can be treated with the various parts of the plant. All of the plants under discussion are accompanied by an illustration, some of which are more recognizable than others. Snakes and scorpions are frequently drawn next to the illustrations to indicate that those specific herbs or plants may be used as an antidote to poisonous bites or stings. The drawings appear to be the work of one miniaturist, who followed the example of late classical, naturalistic book illustration. However, this remains difficult to ascertain because, besides illustrated manuscripts, so little visual art from the sixth and seventh centuries was preserved in the West. A mere handful of church mosaics in Rome and a few monumental Italian wall paintings have survived, but they do not provide enough information to form an educated opinion.

The sixth-century illustrations of VLQ 9 revert to a tradition of many centuries before. The oldest surviving plant illustrations were discovered in the desert sands of Egypt. Second-century papyrus fragments were dug up in the Fayum region but these, unfortunately, offer little visual information.[13] A beautifully coloured Greek fragment from the late fourth century emerged from the sands at the beginning of the twentieth century during the excavation of Antinopolis, on the eastern bank of the Nile. The snippet of papyrus depicts on either side a plant, whose identities are uncertain. They might be *symphitos* (*symphitum officinale*, comfrey) and *phlommos* (*verbascum*, mullein) (Introduction, ill. 2, p. 15). A relationship with two miniatures in VLQ 9 is quickly established (compare ill. 4, p. 40).[14] Could there perhaps have been a common Greek-Latin source as a model, for both the text and the illustration? Discussion around this possibility intensified upon comparison to a half-burned copy of the Apuleius Platonicus herbarium that is housed in Kassel (UB 2º MS phys. et hist. nat 10). It shows a direct relationship with the





Leiden MS VLQ 9.[15] The miniature of the *symphitum* in that manuscript resembles the papyrus fragment more than it does the miniature in the Leiden manuscript. The only problem is that the Kassel manuscript dates from the second half of the ninth century (ills. 5, 7, 8; Chapter 6, p. 155 ill.11); in other words, much later. How can this be explained?

The relationships between the copies of the Apuleius Herbarium

In order to clarify the relationship between manuscripts or groups of manuscripts dating from various centuries, the modern-day researcher develops a stemma, a sort of reverse pedigree. At the top comes what is called the hypothetical proto-text. This is generally named A, archetype or Alpha, that has rarely reached us. There is no remaining autographed copy of Apuleius Platonicus, and, indeed, of any other classical author. At best, we might have a few personal notes. For our stemma, all of the manuscripts containing the Apuleius text were examined to discern common characteristics. The underlying principle is that no single handwritten book is identical to another, regardless of how meticulous the copyist or illustrator may have been. Errors occur, additions appear, improvements are made and omissions take place. By looking at the changes over time, an attempt can be made to determine the first instance of a variation. It is similar to genetic research, to an attempt to trace the first ancestor with blue eyes in a predominantly brown-eyed family.



Approximately sixty manuscripts of the Apuleius Platonicus have survived from the sixth to the sixteenth century, together with a number of fifteenth-century incunabula. Almost all of the manuscripts are illustrated. In 1925, Paul Diepgen embarked upon a large-scale research project on the interrelationship of six of the manuscripts on the basis of the textual tradition.[16] Two years later Ernest Howald and Henry Sigerist drew up a stemma of all the manuscripts they were able to examine. Now, more than ninety years later, these stemmas are somewhat out of date due to the discovery of new manuscripts, but the underlying foundation remains.[17] They established three basic groups from an A-archetype: an alpha, beta and gamma 'recension', three fruitful branches sprouting from the same stem.[18] Some manuscripts would appear to be almost directly copied from one another, while others were derived from the same exemplar.

In the same year, another giant in the study of classical herbarium tradition, Charles Singer, published a simplified pedigree and introduced sub-classifications (ill. 6, p. 36).[19] Within the alpha group, he distinguished an extensive southern Italian family alongside a German group of two manuscripts. In the beta group, he perceived an Anglo-Norman sub-group. Singer did not change the gamma group of VLQ 9 and the Kassel manuscript. Research by Mylène Pradel-Baquerre in 2013 makes clear that the situation is actually much more complicated, and that the gamma group has more correlations with the alpha group than was previously thought.[20] Yet, even this scholar in her prodigious dissertation of almost 750 pages and 1250 footnotes did not come up with a new stemma or, even less, a critical edition because, she sighs, 'that would require a great deal of work'.[21] Calling the text 'interactive', she is absolutely correct in her assertion that making a stemma for a text that has seen so many interpolations and changes over the course of time is a most difficult task.

We don't have time for that here either. What is more interesting is the question of whether or not the *illustrations* follow the tripartite stemma of the *text* or if they are following their own, separate path. To put it differently: do the illustrations in gamma (VLQ 9 and Kassel) have the same single common source as their text? This question can be answered in the affirmative. Aside from comparable illustrations of the *symphitum* and the *verbascum* (see above), the two illustrations of the betony are almost identical in the two manuscripts (Introduction, ill. 7, p. 23; ill. 7, p. 42). The depictions in both manuscripts appear to have remained close to a common source. That means that the illustration tradition of the

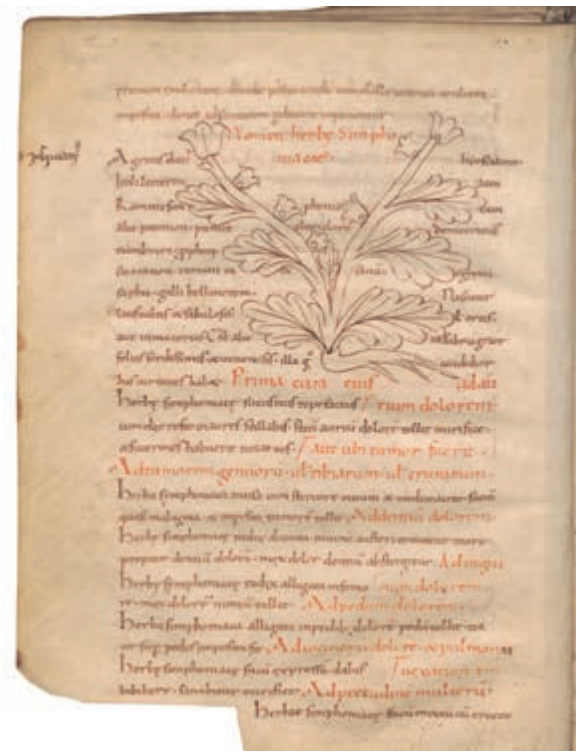
10.
Anthology, with Apuleius Platonicus's Herbarium, France, early eleventh century. Dim. 258 x 180 mm. Leiden, UB MS VLQ 13, fol. 9v. *Nomen herbe simphonacae* (*Hyoscyamus niger*, henbane).

11.
Apuleius Platonicus, Herbarium. London, BL MS Harley 1585, fol. 19v. *Nomen istius herbe simphoniaca* (*Hyoscyamus niger*, henbane).

12. ▷
Apuleius Platonicus, Herbarium, southern England/northern France, late twelfth century. Dim. 300 x 200 (215 x 150) mm. London, BL MS Sloane 1975, fol. 18v. Left: *nomen herbe gentiana* (gentian, *Gentiana lutea*). Right: *Nomen herbe cyclaminos* (cyclamen). This manuscript is an exact copy of Harley 1585.

gamma group follows the same line as the textual tradition. The illustrator of Kassel imitated the same late classical style as is found in VLQ 9 from three centuries earlier, even if he wasn't successful in all cases. If one compares the Kassel *herba personacia* to the Leiden variation, one notes that the round forms of the leaves lie in a flatter plane (Introduction, ill. 8, p. 23; ill. 8, p. 42).[22]

No other manuscripts from the gamma group have come down to us. Let us turn to manuscripts that have not yet found a place in the stemma, since they were unknown to scholars like Howald and Singer. Three of them are found in the Netherlands.[23] The Leiden University Library possesses four Latin herbaria dating from the sixth to the thirteenth centuries (apart from VLQ 9: Leiden, UB MSS VLQ 13, VLQ 40 and BPL 1283). Meermanno/The House of the Book in The Hague has an almost unnoticed tenth-century manuscript in its collection (MMW 10 D 7). None of these manuscripts has received more than an incidental remark in studies on the textual tradition of Apuleius Platonicus. VLQ 40 (late eleventh century) is completely unknown; VLQ 13 (early eleventh century) was assigned a general place in the beta family by Howald and Sigerist because they were not able to actually see the manuscript, and BPL 1283 (late thirteenth century) was placed in the alpha family, equally without further specifications due to lack of information. Fifty years later, in 1977, Heide Grape-Albers undertook thorough research and placed BPL 1283 in a subgroup of the alpha family.[24] During her study, Grape discovered the hitherto unknown manuscript, Meermanno 10 D 7 (tenth century), that she placed in the beta family. BPL 1283 was studied more carefully and partially published in 2007, when a number of scholars devoted a monograph to a ninth-century copy that is now found in Lucca. BPL 1283 is related to this manuscript.[25] In short, of all of the manuscripts discussed here, aside from the famous VLQ





9, only BPL 1283 has received any attention. There is still much to be done. A study of the interrelationships between manuscripts involves a great deal of time and requires visual material of manuscripts from all over the world. For this reason, I confine myself here to the two Leiden manuscripts VLQ 13 and VLQ 40. Making use of a number of examples, among them betony, henbane and cyclamen, I have attempted to trace connections in the visual tradition of the Apuleius manuscripts from the period of approximately 600 to 1200.

VLQ 13, the Leiden Apuleius manuscript from the eleventh century

VLQ 13 is a compilation manuscript, a convolute of 54 folia with texts and fragments from different centuries. The Apuleius section, from fols. 3v to 14v, dates from the eleventh century and contains the first 22 plants.[26] The copyist consistently followed his example as carefully as possible and left space for the drawings next to the text, exactly as his source had done. The vettonica or betony on fol. 3v (Introduction, ill. 9, p. 24), for example, is neatly drawn between the lines and emphasizes the plant's symmetrical characteristics. Note the two small plants to the left and the right of the foot of the plant. These offshoots are perhaps meant to show how betony propagates itself with horizontal roots. The cyclamen grows elegantly between the letters on fol. 12v (Chapter 6, ill. 6, p. 151). In total, there are five completed illustrations. The remaining seventeen plant illustrations were not filled in, even though room was left by the copyist. In other words, he would have had a precise source indicating where he must place his text. Looking at the result, it becomes immediately clear how the production process worked as the text was written first and the illustrations added later. In either case the exemplar was carefully followed.

The curious little plants to the left and right of the foot of the betony are not found in VLQ 9 nor in Kassel (Introduction, ill. 7, p. 23; ill. 7, p. 42). They put us on the path of a small, specific group of manuscripts in the Apuleius manuscript series. We find the same 'off-shoots' in a number of manuscripts from the twelfth century, referred to as the Anglo-Norman subgroup under beta, because they were composed either in southern England or northern France: London BL Harley 1585 (the oldest, *c.* 1150), Sloane 1975 (*c.* 1190-1200) and Oxford Bodleian Library Ashmole 1462 (*c.* 1190-1200, an exact copy of Harley 1585) (see Singer's stemma, ill. 6, p. 40). The miniature in Harley 1585 contains the same small, green plants to the left and right in a miniature whose colouring looks like a modern painting (ill. 9, p. 43). Sloane 1975 has an almost identical miniature, as does Ashmole 1462, but without the coloured background.[27]

Turning to the other miniatures in this Anglo-Norman group, we find that they all seem to scrupulously follow one another. We find the poisonous henbane (*herba simphoniaca*) in VLQ 13 (ill. 10, p. 44) as well as in Harley 1585 (ill. 11, p. 44) and in Ashmole 1462. Arguing that their resemblance is limited, is to be distracted by stylistic differences. VLQ 13 represents the distinguishing external characteristics of the henbane in a symmetrical manner. The stalkless, broadly undulating, crenelated leaves have white nerves and embrace the stem. The trumpet-shaped flowers have short stalks and long, spikey blossoms. The miniatures in the other manuscripts of the group exhibit exactly the same characteristics: a symmetrical plant with clasping leaves and flowers that grow vertically, like spikes. The depiction of the essential characteristics of the plant is so accurate that it is no surprise to find an illustration of henbane in a Middle-Dutch text of Jacob van Maerlant's *Der naturen bloeme* from the first quarter of the fourteenth century with exactly the same characteristics (Chapter 10, ill. 3, page 188).

The illustrations of the cyclamen lead to a similar conclusion as they all go back to the same model. One may be more stylized or colourful than another, but the result remains the same: two long, elegant stems bending towards one another on a small bulb (compare ill. 12 with Chapter 6, ill. 6, p. 151). If one compares the cyclamen from the group clustered around VLQ 40 (ill. 17; Chapter 6, ill. 7, p. 151) it is clear that a completely different exemplar was used.

Now that we have established VLQ 13 as part of the Anglo-Norman family, where should it be placed within the group? Unlike the other manuscripts, the illustrations in VLQ



13.
Apuleius Platonicus, Herbarium, southern Germany, 1075-1100. Dim. 265 x 170 mm. Leiden, UB MS VLQ 40, fol. 5v. Vetonica (*Betonica officinalis*, Betony).

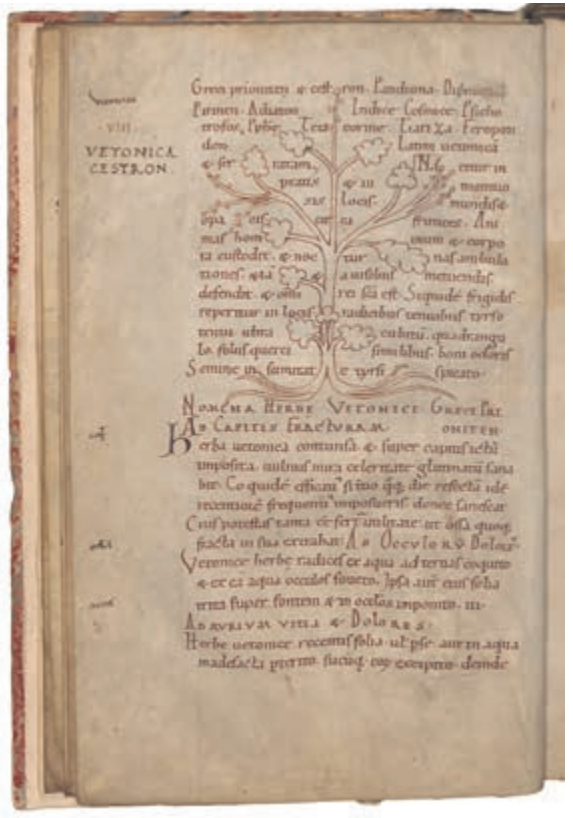
14.
Apuleius Platonicus, Herbarium, Germany, late eleventh-early twelfth century. Dim. 260 x 190 mm. London, BL MS Harley 4986, fol. 1*, Betonica (*Betonica officinalis*, Betony).

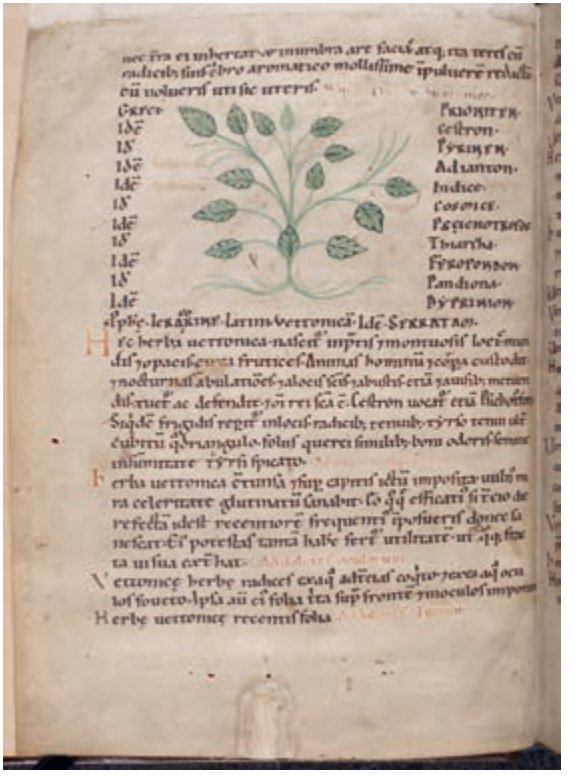
17. ▷
Apuleius Platonicus, Herbarium, Germany, c. 1200. Dim. 290 x 190 mm. Eton, Windsor, ECL MS 204, fol. 13r, detail. Cyclamen.

13 consist completely of uncoloured pen drawings. Moreover, unlike the other three, no human figures were added, no healers, classical gods or goddesses. Consequently, VLQ 13 could not have been the prototype for any of those manuscripts, even though it dates from the early eleventh century, certainly a century before the others. The manuscript is not a direct predecessor, in other words, but rather a side branch without any known descendants.[28] As an additional conclusion, we can cautiously suggest that the place of origin of VLQ 13 should be sought in the Anglo-Norman area.

VLQ 40, the Leiden Apuleius manuscript from *c.* 1075-1100
VLQ 40 is a late eleventh-century manuscript consisting of 54 folia that was made in Germany, as attested by the additions of German synonyms by the copyist, such as 'wegeric' describing plantain (*plantago*).[29] Just as in VLQ 13, pen drawings are placed between the text and the miniaturist was unable to finish a number of illustrations. Three snakes and dogs are drawn and there are 127 pen drawings of plants, three of which are either partially or completely unfinished. The herbarium ends with the mandrake (Chapter 6, ill. 13, p. 156). The text that follows is illustrated with eleven animal drawings.

First of all, let us look at what is done with the betony. It is missing the offshoots to the left and right of the roots, as would be expected (ill. 13). The branches move gracefully between the text and slight blades with tiny balls depict the flowers. The egg-shaped crenelated leaves are typical of the





plant, but there is little else that bears any resemblance to reality and it does not belong to the Anglo-Norman family. In contrast, one manuscript from the side branch of the alpha group, London BL Harley 4986, looks more promising (ill. 14). The same design of roots, branches and flowers indicates that we are on the right track. Based on the text, Singer places Harley 4986 and a second manuscript, Eton College 204, in a single cluster that he calls the 'German group'. Are VLQ 40, Harley 4986 and Eton 204 perhaps related?

The plant bearing the name *Leboris pes* is depicted on fol. 25r of VLQ 40 (ill. 15, p. 48). The root looks like a strange animal with long forepaws bearing no resemblance to reality. Only the slender, long leaves of the plant might be said to resemble a real hare's paw. It is not the name that would have inspired the artist, however, because there are other instances in which he disguises plant roots as animals. Only three of the other Apuleius manuscripts have a similar illustration, see for example, ill. 4, p. 40, Harley 4986 (ill. 16, p. 48) and Eton 204, all three dating from the twelfth century. It seems hardly possible that they are not related. Then let us look at the cyclamen drawn in two of the three manuscripts (ill. 17, p. 47; Chapter 6, ill. 7, p. 151). Once again, they demonstrate considerable similarity and at the same time do not resemble VLQ 9 (Chapter 6, ill. 4, p. 148) or the Anglo-Norman group at all.[30]

The text, the German synonyms, the illustrations and the way in which a number of the plants are depicted lead to the same conclusion regarding the place where they were copied. That is not illogical, but the opposite is frequently the case. This leaves me with one last question: on the basis of these similarities, is it possible to imagine how the incomplete pen drawings of VLQ 40 were meant to be finished? If we place the fols. 39r and 46r of VLQ 40 next to the corresponding miniatures of Harley 4986 (fols. 35r and 41r), it is clear that they all match (ills. 18, 19, 20, 21, pp. 48-50). In the case of the absinth in VLQ 40, the bulbs and roots are already drawn but the stems are missing and the illustrations for dill and oregano are completely absent on VLQ 40 fol. 40r. They can, however, be reconstructed on the basis of Harley 4986 fol. 41r. That is how close both manuscripts are to their common exemplar. The faithfulness with which the miniaturists have followed their source proves to be characteristic for the visual tradition between the sixth and twelfth centuries.

The Anglo-Saxon translation

The only branch of Singer's pedigree that has remained under-examined concerns the manuscripts with the tenth-century translation into Anglo-Saxon. In addition to a number of unillustrated, modest copies, one imposing manuscript from the early eleventh century with extraordinary illustrations has come down to us.[31] It is preserved in the British Library under the signature Cotton Vitellius c iii.[32] It would equal the fame of the Vienna Dioscorides were it not for the fact that it was badly damaged when Ashburnham House in London went up in flames in 1731, along with a large share of the illustrious book collection of Sir Robert Cotton. The surviving 159 pages measure approximately 270 by 190 mm. Each plant is colourfully illustrated (ill. 22, p. 51). The illustration of the plantain is accompanied by a scorpion and a snake to make clear that the plant offers an antidote to poison. The scorpion is so lifelike that it suggests an Italian example as model. None of the depictions bears any relationship to the other manuscripts discussed here.

The painted green world after Apuleius

People who still wanted to commission an Apuleius Platonicus herbarium in the thirteenth century, found themselves apparently sadly behind the times. We find no more than three remaining manuscripts of good quality from this period. All three follow the old patterns in their colourful illustrations. One of these is found in the Leiden University Library under the signature BPL 1283 (abbreviation for *Bibliotheca Publica Latina*). It is a manuscript from the late thirteenth century or early fourteenth century, made in France, that followed an earlier Italian example, as mentioned above (Chapter 6, ill. 10, p. 153).[33] As a serious reference work for physicians, the herbarium was overshadowed by compilations, excerpts of older texts and new translations from Arabic that date to the twelfth century produced in Spain and in southern











15. ◁ ◁
Apuleius Platonicus, Herbarium, Leiden, UB MS VLQ 40, fol. 25r.
Leboris pes (*Geum*, Avens).

16. ◁
Apuleius Platonicus, Herbarium, London, BL MS Harley 4986, fol. 20v. Leporis pes (*Geum*, Avens).

18. ◁ ◁
Apuleius Platonicus, Herbarium, Leiden, UB MS VLQ 40, fol. 39r. Absinthe (*Artemisia absinthium*), partially drawn. Compare to following illustration.

19. ◁
Apuleius Platonicus, Herbarium, London, BL MS Harley 4986, fol. 35r.
Nomen herbe absinthum Wermut (*Artemisia absinthium*, absinthe).

Italy, at the School of Salerno. But it was overtaken primarily because it was not based on the theory of the temperaments, or humours, of Galen and his followers (see the contribution of Van Winter, Chapter 7). Nowhere in Apuleius is there an indication of the gradation of garlic, for example, how warm and dry or cold and wet it is. Galen's ideas, which had been developed and refined over the years and finally systemized by the Arab scholar Ibn Butlan, had become predominant in Latin thought. The *De viribus herbarum* by Macer Floridus, who was the first to indicate the gradations of plants (see the Introduction), had become popular and together with a selection of university texts, known jointly as the *articella*, swiftly filled the gap. From this point on, a reader could find the gradations for every conceivable plant, once again arranged according to the four humours, and thus anticipate the effects it would have on a patient.

The new plant illustrations in these compendia of the late thirteenth century are found primarily in the works stemming from southern Italy. It was not that scholars in the north such as Albertus Magnus or Bartholomeus Anglicus were not interested in nature. Anglo-Saxon centres in particular wrote a number of remedies, but the illustrations in their work did not bring the plant any better in focus.[34] The first illustrated treatise on the plant world to be truly naturalistic was the *Tractatus de herbis et plantis*. It was compiled with other texts that were read by students in Salerno. A beautiful copy, created in Salerno around 1300, was purchased by the British Library thanks to the funding of Francis Henry Egerton and catalogued under number 747.[35] Betony (Introduction, ill. 14, p. 29) is still represented in the traditional manner, but the mandrake illustration is the first reasonably lifelike reproduction (Chapter 6, ill. 14, p. 157). In addition, the illustrator demonstrates an unexpected sensitivity for the layout of a page. He uses all of the empty space including the margins to show a plant at its best (ill. 23, p. 52). Like an unexpected visitor, the bryony climbs effortlessly over the page, around the shepherd's purse and sorrel. These illustrations were one of the reasons that caused art historians in the twentieth century to see the unfolding of a new chapter in art, a period of 'back to nature'.[36] As pleasing to the eye as it may be, Egerton 747 was in all likelihood intended for a university library. The twelve-page quires, the format (360 × 242 mm) and the inexpensive parchment all lead to that conclusion.[37]

The importance of the presence at that time of the court of Frederick II in southern Italy, with its stimulating effect, should not be underestimated either.

The fourteenth century heralded a period with a completely different book public, that of the bibliophile collector. Both the court and members of the nobility began to collect books, not just to read them but perhaps, even primarily, to demonstrate the well-read owner's sophistication. The University of Padua, in particular Pietro d'Abano, lent an intellectual aura to the interest in the world of plants. The commission by Francesco da Carrara, Duke of Padua (d. 1404) for an Italian translation of the herbarium by an Arab scholar, Ibn Sarabi, or Serapion the Younger, resulted in a lavish plant book, Egerton 2020 (ill. 24, p. 53). This scholar lived at the end of the twelfth century. No Arab manuscripts of his work have come down to us, and not even a Latin translation has been preserved. We have only this sole manuscript, dating from around 1400. The *Herbolario Casanatense* has become world famous, due to its exceptionally beautiful miniatures. Similarly, we find a series of illustrated luxury copies of the *Tacuinum sanitatis*, all of which were made in northern Italy for an exclusive market (see the contribution by Van Winter, Chapter 7).[38] The emphasis was on the lavish illustrations. The accompanying text is summary and offers little information aside from the various characteristics of the plants, hot, cold, dry and moist.

People in the late fifteenth century, who really wanted to know about plants, collected their own information or sought their own plants. The notion that plantain should be tied under the chin to relieve a headache was rarely encountered, even though the remedy would continue to be circulated as late as the seventeenth century. A beautiful example of a private herbarium can be found in the Leiden University Library under the signature BPL 3103. The illustrations here point to the future. It is a German manuscript on paper sheets from 1470-1490 with colourfully painted or drawn flowers and plants on the recto side. The name of the plant is given above on the left. The verso side provides lists of synonyms (ills. 25, 26, pp. 54, 55). Thereafter, an owner added numerous medical notes about the plant in German. Anyone familiar with the medical scholarship of the period will recognize snippets of texts by Macer Floridus and other eminent writers. It is the illustrations, however, that are the most striking. The henbane and geranium are remarkably lifelike.

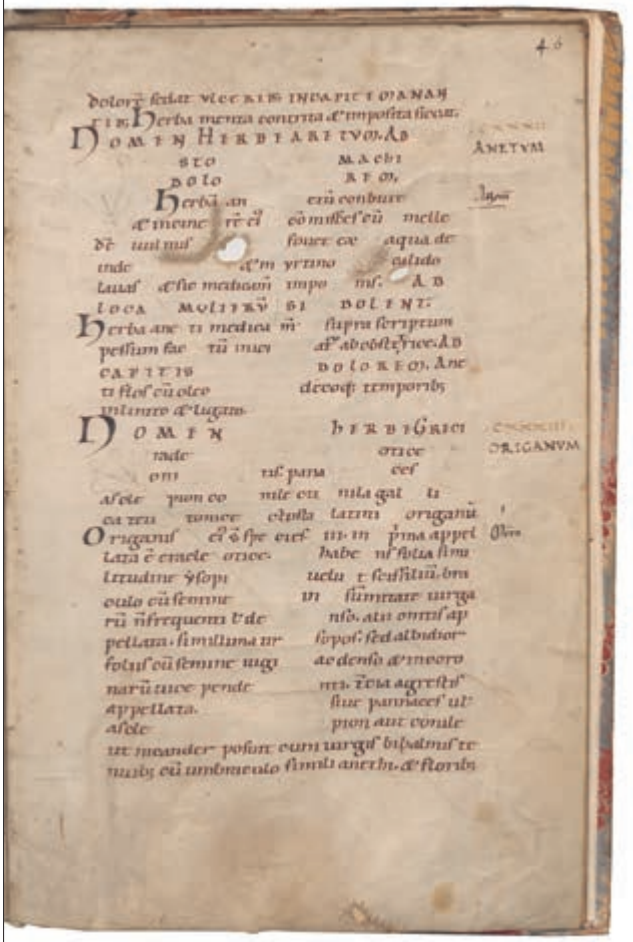
20.
Apuleius Platonicus, Herbarium, Leiden, UB MS VLQ 40, fol. 46r. *Nomen herbe aretum*, (*Anethum graveolens*, dill), and Origanum (Origanum vulgare, oregano), both not filled in.

21.
Apuleius Platonicus, Herbarium, London, BL MS Harley 4986, fol. 41r. *herbe anetum*, (*Anethum graveolens*, dill) and *herbe origanum* (*Origanum vulgare*, oregano).

22. ▷
Apuleius Platonicus, Herbarium, in Anglo-Saxon translation, England, eleventh century. Dim. 260 x 190 mm. London, BL MS Cotton Vit. C.iii, fol. 23v. *Hennebelle* (*hyoscyamus niger,* henbane).

Printed and 'real life' plant illustrations

After the arrival of the printing press in 1450, when suddenly a trove of written information could become more widespread, the printing of the herbarium of Apuleius Platonicus was an exceptional opportunity to make a classic source text available to a larger public. If we look at the illustrations of the Italian printer Lignamine from 1481-1483, the reversion to a very stylized, unrecognizable type of plant illustrations is striking (Chapter 2, ill. 2, p. 60). This is peculiar, especially when we consider that for decades the most beautiful flowers and plants had been painted on panels by such artists as Jan van Eyck, Hugo van der Goes and Hans Memling. How can this be explained? Firstly, it is possible that one considered it unnecessary to design a completely new illustration model for a centuries-old, classic text. The old illustrations were sufficient as prototype. Secondly, it would seem that the technical standards for woodcutting were not very high as a meagre aesthetic result was apparently good enough. Still, not much later, the extremely popular *Hortus sanitatis* was printed in Germany (see Appendix II), with hundreds of woodcuts in a similarly simplified style. The difference with the naturalistically painted miniatures from almost a century earlier in the



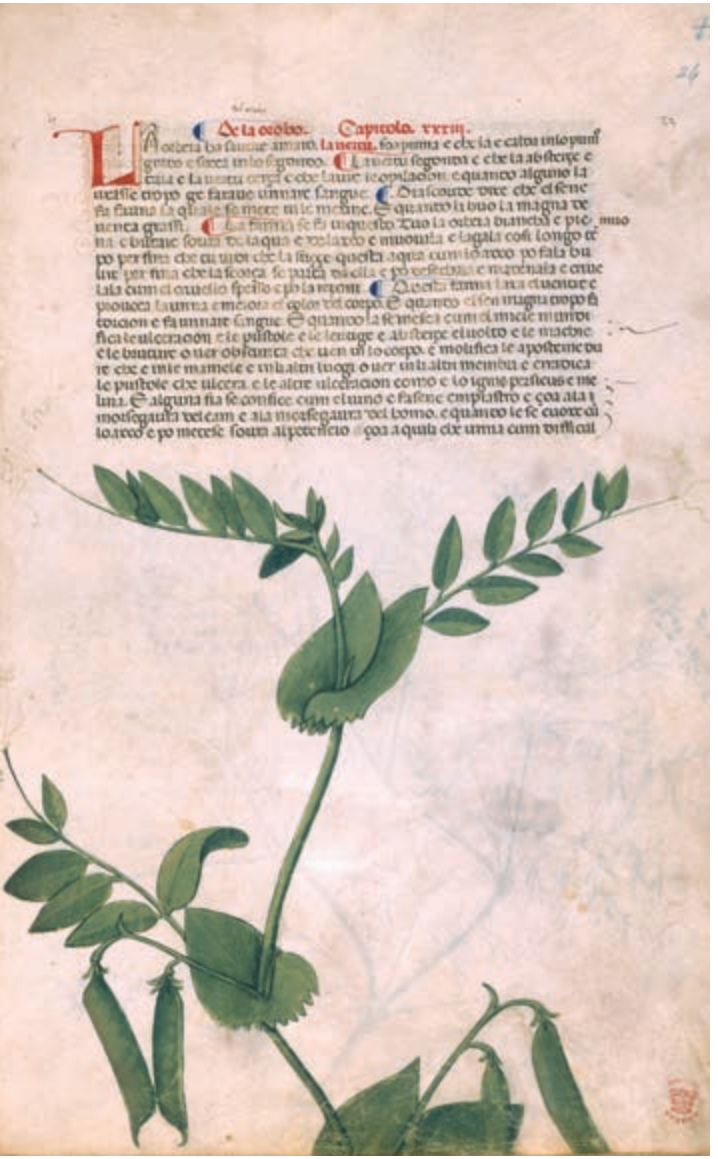



henne belle:


Bursa pastoris.
Buoma. siue cucurbita agrestis.

23. ◁
Tractatus de herbis, Platearius. *De simplici medicina etc.,* Italy, Salerno, *c.* 1280-1310. Dim. 360 x 240 mm. London, BL MS Egerton 747, fol. 16v. herba brittanica (*Rumex actosa,* sorrel); bursa pastoris (*Capsella bursa-pastoris,* shepherd's purse), white bryony (*Bryonia*).

24.
Serapion the Younger, *Herbolario volgare* and other texts ('*The Carrara Herbal*'), Padua, 1390-1404. Dim. 349 x 238 mm. London, BL MS Egerton 2020, fol. 26r. *De la orobo – cap xxxiij.*



Tacuinum sanitatis and the *Tractatus de herbis et plantis* is considerable, indeed.

A remarkable phase between the period of hand-painted copies and later, printed plant illustrations occurs: the nature print. It required a complex production process in which a leaf or flower was covered with soot or ink and printed directly onto a sheet of paper.[39] A German doctor, Conrad von Butzbach, must have been the first to make such prints while he was travelling in northern Italy in 1425.[40] In 1505, Leonardo da Vinci initiated further experiments with the technique, but it remained an intricate business and only provided a single print per plant.

The first printed plant books to have true-to-life illustrations date from the sixteenth century. They originated in northern Europe and stemmed from the hands of the 'fathers of botany', Otto Brunfels, Hieronymus Bock and Leonhart Fuchs. The printer of Otto Brunfels's *Herbarium vivae eicones* from 1530, Johann Schott, asked the gifted artist Hans Weiditz to make the woodblocks as the author himself, curiously enough, called pictures 'empty lines' (see the illustration on page 10, Introduction). Schott set the course that led to the portrayal of plants in a completely different way. If we look at the two types of plantain (*plantago*) in the *Herbarium vivae eicones*, we recognize them immediately (ill. 27, p. 54).[41] The author Otto Brunfels himself was less of an innovator and he continued to follow the text of Apuleius Platonicus in a traditional manner. In 1530, the sufferer of a headache was still advised to tie a bunch of plantain under his or her chin, which made the pain disappear miraculously, 'mirifice'. Printed books are discussed by Iris Ellers in Chapter 2 of this book.

A logical, yet unexpected development occurred at almost the same time. Once books no longer consisted of parchment quires but were made of paper, plants could easily be dried between sheets of paper and arranged in collections by either pasting or sewing them in. The *herbaria viva*, books with 'living' plants, offered a completely new way for anyone to collect and pass on visual knowledge. Gerard Thijsse's contribution in Chapter 3, concentrates on this remarkable new form.

Conclusion

At the beginning of this chapter, I proposed that Pliny was perhaps right to make denigrating remarks about plant illustrations and their usefulness. Unlike Pliny's *Naturalis historia*, Apuleius Platonicus's herbarium does not provide any description whatsoever of the external characteristics of a plant and,



27. ◁
O. Brunfels, *Herbarium vivae eicones*, published by Johann Schott, Strassburg in 1532, with woodcuts by Hans Weiditz, p. 23. Amsterdam UB OTM OG 80-168. *Plantago maior*, broadleaf plantain.

as a result, the illustrations were expected to make a considerable contribution. I have attempted to show, by comparing a number of illustrations of henbane and other plants from the eleventh and twelfth centuries, that in keeping with tradition the illustrator often remained close to his source. The illustrator emphasized a number of specific characteristics of a plant. This gave the reader sufficient indicators to be able to recognize the correct specimen. Incorrect or unusable illustrations, in the sense that they are useless for the identification of a plant, are also included however, for example the hare's paw in the Leiden manuscript VLQ 40 family.

Yet, illustrations serve other purposes in a book than just identification. The art historian Ernst Gombrich set forth in his *Art and Illusion* in 1960 and later in one of his many essays,



25. ◁
Anonymous, private herbarium in Latin, German and Bohemian, southern Germany, late fifteenth century with later notations (sixteenth century) surrounding the illustrations. Leiden, UB MS BPL 3103, fols. 15v-16r. *Bylsen* (*Hyoscyamus niger*, henbane). Compare Biemans, ill. 3, p. 216.

26.
Anonymous, private herbarium in Latin, German and Bohemian, Leiden, UB MS BPL 3103, fols. 69v-70r. *Storch snabel* (*Geranium*, cranesbill).

Visual Discovery through Art from 1965, that 'true to life drawing', 'recognition' and 'remembrance' do not follow the same patterns. Another scholar, specialized in the illustration of medieval scientific knowledge, John E. Murdoch, considered in his *Album of Science: Antiquity and the Middle Ages*, the types of illustrations, such as diagrams, that can complement a text. He posited, much in the same way as Gombrich, that an iconographic tradition was sufficient to serve an organizational function: 'It appears that this requirement was satisfied by an iconographic tradition that was quite separate from the tradition of the text.'[42] Illustrations were recognizable anchors in a book that could guide a reader without too much bother to the correct passage. Symmetrical images were more easily remembered than complicated ones, thus simple miniatures and woodblocks achieved that objective. Modern researchers, in the context of contemporary medical studies and illustrations, sought a better understanding of the next development in the history of plant book illustrations, the 'naturalistic' illustration. It is not by chance that in 1543 Vesalius published his study on the human body *De humani corporis fabrica* with anatomically accurate illustrations.[43] Otto Brunfels, together with the publisher Schott and the illustrator Hans Weiditz, had by then brought out a book with the first naturalistic plant illustrations. Superstition and peculiar remedies such as the bundle of plantain under the chin had not yet been put completely aside, it is true, but botanical illustrations did take a giant leap into the new world. It was only a question of time before medical understanding would follow.



NOTES

[1] Praeter hos Graeci auctores prodidere, quos suis locis diximus, ex his Crateuas, Dionysius, Metrodorus ratione blandissima, sed qua nihil paene aliud quam difficultas rei intellegatur. pinxere namque effigies herbarum atque ita subscripsere effectus. verum et pictura fallax est coloribus tam numerosis, praesertim in aemulationem naturae, multumque degenerat transcribentium socordia. praeterea parum est singulas earum aetates pingi, cum quadripertitis varietatibus anni faciem mutent." (Http://penelope.uchicago.edu/Thayer/L/Roman/Texts/Pliny_the_Elder/25*.html). See also P. Murray Jones, *Medieval Medicine in Illuminated Manuscripts*. London 1998, pp. 58-75.

[2] Another theory is that the illustrations were made and preserved separately from the text on independent papyrus rolls. See S. Lazaris, 'L'illustration médicale dans l'Antiquité', in: *Du réel à l'image – Reality Through Image. Congress Proceedings, AEIMS Congress*. Strasbourg 2011, pp. 18-23.

[3] "Frequenter mihi in peregrinationibus accidit ut aut propter meam aut propter meorum infirmitatem varias fraudes medicorum experiscerer, quibusdam vilissima remedia ingentibus pretiis vendentibus, aliis ea quae curare nesciebant cupiditatis causa suscipientibus, -Plinii secundi iunioris de medicina." See: K. Brodersen, *Plinius' Kleine Reiseapotheke (Medicina Plinii, Latin and German)*. Stuttgart 2015, prologue.

[4] Pliny was not illustrated until the fifteenth century and then only sporadically. See for example S. Blake McHam, 'Erudition on Display: The "Scientific" Illustrations in Pico della Mirandolo's Manuscript of Pliny the Elder's Natural History', in: J.A. Given et al., *Visualizing Medieval Medicine and Natural History, 1200-1550*. Aldershot 2006, pp. 83-114.

[5] B. Kiilerich, 'The Image of Anicia Juliana in the Vienna Dioscorides: Flattery or Appropriation of Imperial Imagery?', in: *Symbolae Osloenses: Norwegian Journal of Greek and Latin Studies* 76:1 (2001), pp. 169-190.

[6] *Dioscorides, Codex Vindobonensis med.gr. 1*. Vollständige farbige Faksimileausgabe, Graz 1965-1970. Kommentarband H. Gerstinger 1970 (Codices selecti 12.12*); a smaller, easier-to-use edition in two volumes was published somewhat later: *Der Wiener Dioskurides. Codex medicus graecus 1 der Österreichisen Nationalbibliothek*, O. Mazal (comm.), Graz 1998 (Glanzlichter der Buchkunst 8/1and 8/2).

[7] J.K. Rowling, *Harry Potter and the Chamber of Secrets*. London 1998, p. 92. On the mandrake, see C.J.S. Thompson, *The Mystic Mandrake*. London 1934. For the illustration tradition, see H. Grape-Albers, *Spätantike Bilde aus der Welt des Arztes. Medizinische Bilderhandschriften der Spätantike und ihre mittelalterliche Überlieferung*. Wiesbaden 1977. For a Flemish text on the mandrake, see L.J. Vandewiele, 'Mandragora ook in de Nederlanden', in: *Mededelingen van de Koninklijker Vlaamse Academie voor Wetenschappen, Letteren en Schone Kunsten van België, klasse der Wetenschappen* 24:3 (Brussels 1962), pp. 3-23, figs. 1-16. The body of literature on the mandrake is voluminous.

[8] Leiden, UB MS Or 289: Dioscorides, Kitab al-Haša'iš fi Hayula al-cIlag al-Tibbi. Translation of *De materia medica*, in the al-Husayn b. Ibrahim al-Natili version. Arabic. Iran or Afghanistan(?), dated Ramadan 475 AH (February 1083). For literature, see *Goed gezien. Tien eeuwen wetenschap in handschrift en druk*. [Exhib. cat. Leiden]. Leiden 1987-1988, no. 94; M.M. Sadek, *The Leiden Dioscorides. A Study of an Arabic Illuminated Manuscript of Dioscorides De Materia Medica with special reference to the Vienna and Pierpont Morgan Codices*. [Diss. New York] 1969; M.M. Sadek, 'Notes on the Introduction and Colophon of the Leiden Manuscript of Dioscorides' "De Materia Medica"', in: *International Journal of Middle East Studies* 10:3 (1979), pp. 345-355.

[9] Both Riddle (J.M. Riddle, 'Pseudo-Dioscorides' *Ex herbis femininis* and Early Medieval Medical Botany', in: *Journal of the History of Biology* 14:1 (1981), pp. 43-81) and Collins (M. Collins, *Medieval Herbals: The Illustrative Traditions*. London/Toronto 2000, pp. 148-154) state that the only known illustrated Latin manuscript dating from before 1200 is Munich BSB cod.lat.mon.337 from the tenth century. Later miniatures can be found in: Bologna, Bibl. univ. MS 138 (104), fifteenth century; Erfurt Bibl. Mun. MS Amplon. F41, fourteenth century; Copenhagen, Royal Library MS Thott 190-2º, thirteenth century (with various texts, among them parts of Dioscorides); Paris Bibl. Nat. MS lat 6821, fourteenth century. Unillustrated manuscripts from the ninth-eleventh centuries: Bern, Bibl. de l'école supérieure cod 363, Leiden, UB MS VLQ 1. Paris Bibl. Nat. MS lat 9332 (with fragments in Bern cod A.91), and Paris Bibl. Nat. MS lat 12995. There are a total of thirteen medieval manuscripts containing the Latin text still extant, see J.M. Riddle, *Dioscorides. Catalogus translationum et commentariorum: Medieval and Renaissance Latin translations and commentaries: annotated lists and guides*. Vol. IV, Washington 1980.

[10] On the illustrations in the Munich manuscript, see for example Collins, op. cit. (n. 9), pp. 148-154 and figs. 34, 35 and colour ill. XII. On the relationship with the Vienna Dioscorides, see J.E. Murdoch, *Album of Science: Antiquity and the Middle Ages*. New York 1984, pp. 216-217.

[11] See my introduction to this book. On the texts that accompany the herbarium, see Collins, op. cit. (n. 9), pp. 148-167 and M. Pradel-Baquerre, *Ps-Apulée, Herbier, introduction, traduction et commentaire*. Montpellier III 2013 (http://www.biu-montpellier.fr/florabium/jsp/nnt.jsp?nnt=2013MON30058), passim. Her study has been published in 2018 (see bibliography). For publications of the collections, see Riddle, art. cit. (n. 9), and E. Ferraces Rodriguez, 'Las "Curae herbarum" y las interpolaciones dioscorideas and el "Herbario" del Pseudo-Apuleyo', in: *In memoriam Antonio Zampolli. Euprhosyne, Revista de filologia classica* 32 (2004), pp. 223-240.

[12] Leiden, UB MS VLQ 9 is included in almost every survey of medieval herbaria. On the miniatures, see: *Goed gezien*, op. cit. (n. 8), no. 95 (with bibliography); Grape-Albers, op. cit. (n. 7); W. Blunt & S. Raphael, *The Illustrated Herbal*. First edition 1979, London 1994, pp. 28-29; Collins, op. cit. (n. 9), p. 167 ff.; on the text, see Pradel-Baquerre, op. cit. (n. 11). A palaeographic description can be found in: K.A. de Meyier, *Codices Vossiani Latini II Codices in Quarto*. Leiden 1975, pp. 20-24. Also available online via Medieval Manuscripts in Dutch Collections: http://www.mmdc.nl.

[13] Berkeley, University of California, Center for Tebtunis Papyri, Papyrus Tebtunis 2.679. F. G. Hardy & L.M.V. Totelin, *Ancient Botany*. Abdingdon 2016, fig. 4.2.

[14] C. Singer, 'The Herbal in Antiquity and its Transmission to Later Ages', in: *The Journal of Hellenic Studies* 47:1 (1927), pp. 1-52: 30-33; Murray Jones, op. cit. (n. 1), p. 58; Blunt & Raphael, op. cit. (n. 12), pp. 28-29.

[15] Paul Diepgen examined and described the Kassel manuscript when it was still intact: P. Diepgen, 'Zur Tradition des Pseudoapuleius', in: *Janus* 29 (1925), pp. 55-70 and pp. 140-160, plus a fold-out page with all of the plant names of VLQ 9; Kassel; Bratislava III.F.19; London Harley 4986; Vienna ONB Vind. 93 and 187.

[16] Diepgen, op. cit. (n. 15), passim.

[17] E. Howald & H.E. Sigerist, *Antonii Musae de herba vettonica liber – pseudoapulei herbarius – Anonymi de taxone liber – sexti placiti liber medicinae ex animalibus etc., Corpus medicorum latinorum IV*. Leipzig/ Berlin 1927, *codicum stemma* with explanation p. xxiv and fig. In the same year, Charles Singer produced a somewhat less complicated stemma, but adhered to the three groups of Howald and Sigerist: Singer, op. cit. (n. 14), pp. 1-52; his stemma is found on p. 38. For manuscripts that were discovered later, see Grape-Albers, op. cit. (n. 7), pp. 1-5. It includes The Hague Meermanno 10 D 7, but Leiden UB VLQ 40 was still unknown. Collins, op. cit. (n. 9), only names 10 D 7 in a footnote on p. 228; Pradel-Baquerre, op. cit. (n. 11), pp. 98-116. She has her doubts about the gamma group and sees the possibility that it could be part of the alpha family (p. 116: 'pour notre part, il nous semble que les illustrations confirment un rapprochement possible entre les familles alpha et gamma').

[18] The alpha group gives more and better synonyms of plant names than other groups; there are no interpolations in the text, and they generally contain two other texts on animals in addition to *De vettonica*, the herbarium and the *Ex herbis femininis*. The beta group is the largest group of manuscripts; in addition to the standard texts, it contains an extensive table of contents of the whole text, plus two short, heathen prayers (one of which is a *Precatio terrae matris*,

or prayer to Mother Earth), and includes a number of interpolations. It is the group with the most illustrations. The gamma family is the smallest and consists primarily of the Leiden manuscript and the Apuleius from Kassel, briefly mentioned above. This group stems from the same archetype as the beta group but does not include the animal texts, the improvements or the interpolations of the beta group.

[19] Singer, art. cit. (n. 14), with stemma on p. 38.

[20] Pradel-Baquerre, op. cit. (n. 11), pp. 98-116.

[21] Pradel-Baquerre, op. cit. (n. 11), p. 113.

[22] Grape-Albers, op. cit. (n. 7), pp. 10-11.

[23] Grape-Albers, op. cit. (n. 7), pp. 3-5 and passim.

[24] Grape-Albers, op. cit (n. 7), pp. 57-58 and ill. 133.

[25] A. Touwaide et al., *Herbolarium et materia medica (MS296): libro de estudios*. Lucca 2007.

[26] The manuscript measures 258x180 mm and is written in a regular Carolingian miniscule. K.A. de Meyier, *Codices Vossiani Latini II Codices in Quarto*. Leiden 1975, pp. 36-37 (with palaeographic and codicological description and bibliography); Pradel-Baquerre, op. cit. (n. 11) and Collins, op. cit. (n. 9) do not name VLQ 13 or VLQ 40.

[27] Sloane 1975, fol. 10v, and Ashmole 1462, fol. 12r. On these manuscripts, see for example Collins, op. cit. (n. 9), pp. 180, 203-207. The Harleian collection of the British Library in London is available in its totality online; the Ashmolean collection is as well, although its illustrations are based on old slides. http://www.bl.uk/manuscripts/FullDisplay.aspx?ref=Harley_MS_1585 for Harley MS 1585. For Sloane 1975: http://www.bl.uk/catalogues/illuminatedmanuscripts/record.asp?MSID=8792. Another branch of the beta group has the same offshoots: Vienna ONB Vind. 93, and its copy Florence, Bibl. Laurenziana MS Plut.73.16. These are much later (thirteenth century), and much more richly illustrated than VLQ 13 and its group. For a facsimile edition and detailed description of Vind.93, see: *Medicina antiqua. Codex Vindobonensis 93 der Österreichischen Nationalbibliothek.* H. Zotter (comm.), Graz 1996; Collins, op. cit. (n. 9), pp. 209-220.

[28] These observations support the assertion of Minta Collins that human figures were not part of the classical tradition, but were added over the course of time. Collins, op. cit. (n. 9), pp. 203-206.

[29] See De Meyier, op. cit. (n. 12), pp. 105-107 for a palaeographic and codicological description. The manuscript measures 265 ×170 mm. Various remedies are missing (see de Meyier for a detailed list, p. 106), and in a few cases, the space for the miniature has remained empty. On p. 107 he gives the German names of plants: 'Hic illic in parte a priore librario conscripta legitur inter nomina synonima nomen herbae teutonicum (quod in edit. non legitur), semper ab eo ipso scriptum, e.g. (fol. 7v lin. 29) herb.1: *wegeric*; (fol. 9v lin. 17) herb.3: *uarna*; (fol. 11r lin.11) herb 5: *natirwrz*, etc.' On the German names, see R. Reiche, 'Deutsche Pflanzenglossen aus Codex Vindobonensis 187 und Codex Stuttgart JB XI 46', in: *Sudhoffs Archiv* 57:1 (1973), pp. 1-14. Remarkably enough, VLQ 40 is not mentioned here, although Harley 4986 is.

[30] B. Mathew (ed.), *Genus Cyclamen in Science, Cultivation, Art and Culture*. Kew (Richmond) 2013, Chapter 6: 'Cyclamen in Botanical Illustration' provides a large number of illustrations of miniatures in medieval herbaria, pp. 415-461.

[31] H.J. de Vriend, *The Old English Herbarium and Medicina de Quadrupedibus*. Oxford 1984. De Vriend provides the 'Old English version' alongside the Latin. He gives an extensive description of the following manuscripts: London, BL MS Cotton Vit. C III, MSS Harley 585 and Harley 6258B, and Oxford, BL Hatton 76 op pp. xi-xxxviii. See also L. Voigts, 'Anglo-Saxon Plant Remedies and the Anglo-Saxons', in: *Isis* 70 (1979), pp. 250-268.

[32] The 139 sheets measure ca 265 x 190 mm and are pasted on cardboard measuring 308x235 mm. M.A. d'Aronco & M.L. Cameron (eds.), *The Old English pharmacopoeia, British Library, Cotton Vitellius C. iii*. Copenhagen 1998. Early English manuscripts in facsimile 27, with bibliography; Collins, op. cit. (n. 9), pp. 192-196, Pl. XVI and figs. 49-50. C. Breay & J. Story (eds), *Anglo-Saxon Kingdoms: Art, Word, War*. (London: The British Library, 2018), no. 107 [exhibition catalogue], with bibliography.

[33] A. Touwaide et al., *Herbolarium et materia medica (MS 296): libro de estudios*. Lucca 2007. For an illustration of the mandrake in BPL 1283, see Grape-Albers, op. cit. (n. 7), 57-58 and ill. 133. She compares a whole series of depictions of the mandrake on pp. 52-61. An illustration of an elephant in BPL 1283 can be found in *Goed gezien*, op. cit. (n. 8), p. 133.

[34] The one and only exception is the herbarium in Oxford, BL Bodley 130, written at Bury St Edmunds before 1097, with almost naturalistic miniatures. They were long thought to be drawn after nature, however, comparison with the Apuleius herbals from the beta version shows that they were copied from the same source as the text. See M.A. d'Aronco, 'Gardens on Vellum: Plants and Herbs in Anglo-Saxon Manuscripts', in: P. Dendle & A. Touwaide, *Health and Healing from the Medieval Garden*. Woodbridge / Rochester 2008, pp. 101-127.

[35] M. Collins and S. Raphael, *A Medieval Herbal: A Facsimile of British Library Egerton MS 747*. London 2003; Collins, op. cit. (n. 9), pp. 239-265, pls. XXII-XXIII, figs. 65-73.

[36] See for example, O. Pächt, 'Early Italian Nature Studies and the Early Calendar Landscape', in: *Journal of the Warburg and Courtauld Institutes* 13 (1950), pp. 13-47.

[37] Collins, op. cit. (n. 9), p. 242.

[38] This concerns, in chronological order, the following manuscripts: Paris, BNF n.a.lat. 1673 (1380-1390); Liège, UB MS 1041 (1380-1400); Vienna, ONB cod. ser.n. 2644 (1390-1400); Rome, Bibl. Casanatense MS 4182 (1390-1400); Paris, BNF MS lat. 9333 (1445-1451); Rouen, BM 3054 and private coll. Liechtenstein (ca. 1450). The amount of recent literature on the illustrated *Tacuinum sanitatis* manuscripts is considerable. See for example A. Bovey, *Tacuinum Sanitatis: An Early Renaissance Guide to Health*. London 2005; C. Hoeniger, 'The Illuminated Tacuinum Sanitatis Manuscripts from Northern Italy ca. 1380-1400: Sources, Patrons, and the Creation of a New Pictorial Genre', in: J.A. Givens et al. (eds.), *Visualizing Medieval Medicine and Natural History, 1200-1550*. Aldershot 2006, pp. 51-81.

[39] R. Cave, *Impressions of Nature: A History of Nature Printing*. London/ New York 2010; L. den Dulk, *Natuurdruk: echte afbeeldingen*. [Exhibition Teylers Museum Haarlem] no date, pp. 14-15. The technique is very popular nowadays. The Nature Printing Society in Santa Barbara, California publishes a quarterly newsletter.

[40] Cave, op. cit. (n. 39), pp. 21-25. The pages are kept at the University of Salzburg.

[41] Amsterdam, UB Special Collections OTM OG 80-168; O. Brunfels, *Herbarum vivae eicones ad naturae imitationem, summa cum diligentia & artificio effigiatae etc*. Strasbourg 1532, pp. 23-28. On p. 28 we find the familiar Latin recommendation of tying a bunch of plantain under the chin to cure a headache: 'Herbe plantaginis radix in collo suspensa, capitis dolorem mirifice tollit.'

[42] Murdoch, op. cit. (n. 10), p. 214. The literature on the new form of plant illustration in Italy is abundant. See in addition to Gombrich and Pächt, op. cit. (n. 35), for example E.R. Hoffman, 'Translating Image and Text in the Medieval and Mediterranean World between the Tenth and Thirteenth Centuries' in: H.E. Grossman & A. Walker (eds.), *Mechanisms of Exchange: Transmission in Medieval Art and Architecture of the Mediterranean, ca. 1000-1500 [Medieval Encounters* 18/4-5 (2012)]. Leiden/ Boston 2013, pp. 286-325; A. Givens, *Observation and Image-Making in Gothic Art*. Cambridge 2005; various articles in J.A. Givens et al. (eds.), *Visualizing Medieval Medicine and Natural History, 1200-1550*. Aldershot 2006.

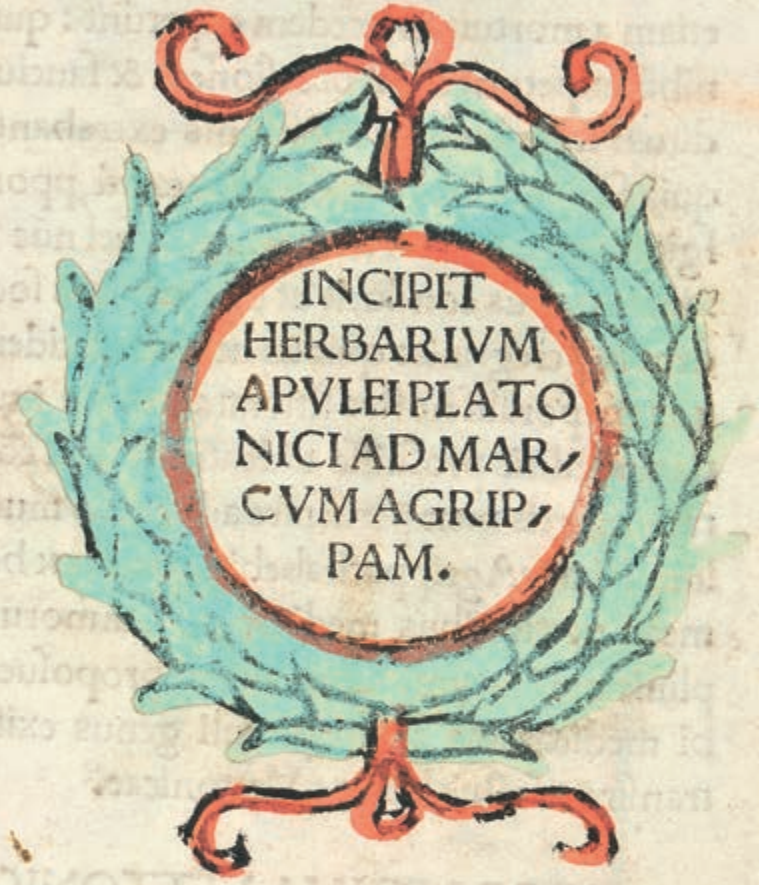
[43] S. Kusukawa, *Picturing the Book of Nature: Image, Text, and Argument in Sixteenth-Century Human Anatomy and Medical Botany*. Chicago 2012.

ABOUT THE AUTHOR

Claudine A. Chavannes-Mazel (1949) studied Art History and Palaeography/Codicology at Leiden University and earned her Ph.D in 1988. Her dissertation topic was the richly illustrated fourteenth-century encyclopaedia, *Le Miroir historial* that was made for the dauphin of France and is now kept in the Leiden University Library. From 1977-1983, she was part-time teacher of Manuscript Studies and Art History at the Tiele Academy in The Hague (now The Hague University of Applied Sciences). Except for an interval of four years doing research in London, she taught Medieval Art History at the University of Leiden (1979-1983, 1987-1993). In 1993, she was appointed Professor of Medieval Art History at the University of Amsterdam. She has had emeritus status since 2014.

2

EARLY PRINTED HERBARIA
A BRIEF OUTLINE BASED ON THE EXAMPLES FROM THE LIBERNA COLLECTION



EXORDIVM IN HERBARIVM.

APVLEIVS PLATONICVS ex pluribus paucaſ uires herba rum: & curationes corporum ad fidem ueritatis monumẽtis publicis tradidit. Odit ſtupiditatẽ uerboſã .cupi ditatẽ:quid dicimus q̃ medicorũ uendicatio po tius q̃ cura etiã homines merita plerũq; & imperi

Iris Ellers

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600. Amsterdam*: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_CH02

Abstract
This contribution focuses on the role of flora in scientific publications and how it developed from antiquity and the Middle Ages to the fifteenth, sixteenth and seventeenth centuries after the invention of the printing press. The depiction of plants is the central theme. The botanical plant illustrations from this period are discussed on the basis of early scientific printed works in the Liberna Collection.
The medicinal properties of plants gave them a special place in early scientific publications. The purpose of these books was, among other things, to identify different plant species and to transmit knowledge about their cultivation, use and medicinal value. As shown here, following this scientific interest in identifying plants, botany grew into a hobby in the seventeenth century.

Keywords: Liberna Collection, herbaria, herb books, plant books, botany

The study of flora occupies a special place in scientific publications.[1] Because of the healing properties of certain plants, a separate line of manuals on medicinal plants appeared in ancient times with the emphasis on their pharmacological effect. The interest was to identify individual plant types and their distinct parts for their medicinal and pharmacological value. Along with this was a desire to know how to cultivate and use them.

For this reason, herbaria were exceptionally prized. What is understood by an *herbarium* is a plant book that provided physicians, pharmacists, medical practitioners or interested lay people with what was considered at the time as medical knowledge.[2] In addition to illustrations and explanations of medicinal plants, other information on medicines was often included. To distinguish this type of book from the *herbarium vivum* – sometimes also called *herbarius vivus* – which was a collection of actual pressed and dried plants (see the contribution by Thijsse, Chapter 3, p. 64), the name *herbarium pictum* is used. It is a lexicon accompanied by more or less faithful illustrations of plants. Most of the 'herb books' as they



1. ◀
Apuleius Barbarus or Pseudo-Apuleius, *Herbarium Apulei Platonici ad Marcum Agrippam*, Rome: Johannes Philippus de Lignamine, before October 1483. Dim. 216 x 152 x 20 mm. Mettingen, DCL Inc 88, page 7r. Title woodcut.

2. ◁
Apuleius Barbarus or Pseudo-Apuleius, *Herbarium Apulei Platonici ad Marcum Agrippam*. Mettingen, DCL Inc 88, pp. 18v-19r. *Herba Pes Leonis (Leontopodion: lady's mantle, p. 57)* and *Herba Scelerata*.

5.
Leonhart Fuchs, *De humane corporis fabrica*, Tübingen: Ulrich Morhart, 1551. Dim. 164 x 110 x 35 mm. Mettingen, DCL W 664. Ottheinrich book cover.

were simply called, contained lists of plants that were relevant for medical applications. Perhaps the most famous source work from antiquity is the *De materia medica* by a Roman military doctor, Pedanius Dioscorides who lived in the first century CE.[3] Another work was the widely circulated, equally classic *Herbarium Apuleii Platonici,* that would become one of the most common sources for later printed publications.[4] This latter volume has been preserved as an *herbarium pictum* in many manuscripts. Even more copies of non-illustrated manuscripts have come down to us, due no doubt to the fact that the user group could seldom afford an expensively illuminated manuscript.[5]

The invention of the printing press in the mid-fifteenth century suddenly made it possible to distribute the older Greek and Roman texts in larger numbers. At the same time, scientific works were made available in vernacular languages, that nonetheless duly acknowledged the essential position of the classical tradition as the basis for further research. Parallel to this, an interest arose in nature encyclopaedias, originating initially in Italy as part of the emergence of humanism.[6] As early as 1476 in Venice, Nicolas Jensen published the *Naturalis historia* of Gaius Plinius Secundus (*c.* 24-79 CE) in Italian,[7] and in 1475 in Augsburg Johann Bämler published the *Buch der Natur* (*Buch von den natürlichen Dingen*) by Konrad von Megenberg (1309-1374), the pioneer of German scientific literature.[8] It is important to note that the great appetite for scientific texts in the fifteenth century, was met primarily by compendia of an encyclopaedic nature. Only later did specialized fields of expertise develop their own distinct literature.[9] Nonetheless, medical-botanical works on plants and herbs already claimed an important place in the scientific works that originated in the incunabula period.

This contribution considers botanical plant illustrations on the basis of early scientific printed works in the Liberna Collection, a private Dutch collection which has been on permanent loan to the Draiflessen Collection in Mettingen, Germany, since 2012. It examines works from the earliest illustrated printed herbarium to the large scale illustrated works of the seventeenth century.

The *Herbarium Apulei Platonici ad Marcum Agrippam* – the first printed *herbarium pictum*

Perhaps the most famous incunable among herb books is Peter Schöffer's *Herbarius latinus,*[10] printed in 1484. It was followed a year later by his *Gart der Gesundheit.*[11] Two vernacular editions are found in the Liberna Collection (ill. 8, 9, pp. 59, 60). The two works are often seen as the first printed plant books and, consequently, as 'textbook examples' of this type of literature.[12] The Pseudo-Apuleius herbarium, mentioned above, is older however and was the first printed book devoted solely to plants.[13] Nothing is known about the compiler Apuleius whose name is proudly displayed inside the laurel wreath on the woodcut title page (fol. 7r) (ill. 1, p. 53). Perhaps he was the North African classical philosopher Lucius Apuleius Platonicus (second century CE), but more likely he was an anonymous student. He dedicated his herbarium to Marcus Agrippa, a Roman general in the first century.[14] Intended as a sort of medical lexicon for physicians, the book discusses 131 medicinal plants. Quite possibly it was the basis for Schöffer's publication.[15] Although the book appeared without any date or place of publication, we are able to determine a *terminus ante quem* for it because of a number of variants in copies of the first edition that was produced in Rome by the printer-publisher and papal courtier Johannes Philippus de Lignamine (1420-1493?). The pre-






Das sechste
Buch
Von Saltzen
Von Sparagen
Von Saltzen
Von Sparagen
Von Schlamen

3.
Bartholomaeus Anglicus, *Boeck van den proprieteyten der dinghen*, Haarlem: Jacob Bellaert, December 24, 1485. Dim. 283 x 215 x 82 mm. Mettingen, DCL Inc 107. Title woodcut for Book 16.

4.
Petrus de Crescentius zu teutsch mit figuren, Speyer: Peter Drach, October 1, 1493. Dim. 285 x 215 x 54 mm. Mettingen, DCL Inc 48. *Stabworz, Saliunca, Sclarea and Sparitzen.*

served copy that is part of the Liberna Collection bears a dedication to Cardinal Francesco de Gonzaga (1444-1483) on the first two pages (fols. 1r-4r). It is one of the two preserved copies to use the correct spelling 'Gonzaga' and not 'Conzaga'.[16] After Gonzaga's death on 21 October 1483, the first quire was replaced with a dedication to Cardinal Giuliano della Rovere (1443-1513), which means that the first edition must have appeared before October 1483.[17]

The *Herbarium Apulei* is arranged in a consistent manner. The Greek name of a plant is given, followed by a corresponding woodcut depiction of the plant. The woodcuts are based, as Lignamine writes in the foreword, on the illustrations of a ninth century manuscript found in the monastery of Monte Cassino (Codex Casinensis 97).[18] A list of all known synonyms in other languages (*nomina*) comes after the woodcut. The list of synonyms fits in with the period of the rise of late classical Antiquity. By that time, the number of synonyms had created uncertainty, as attested by the more than a thousand years older Pseudo-Apuleius (VLQ 9) found in the Leiden University Library. In particular, the translation of plant names into Arabic and then retranslation into Latin had caused confusion. Then, starting in the fourteenth century, vernacular names also appeared. The lists of synonyms were an attempt to clarify the situation and to make correct identification possible. Each entry ends with an indication of where the plant grows (*locus*) and a summary of all known medicinal applications (*operationes*). It is clear that the medicinal aspect of a plant was more important than its botanical identification, because the symmetrically designed woodcuts reduce the plants to their essential characteristics in a rigidly stylized representation. They are primitive, rough cuts placed in tight rectangular frames that fit precisely in the typographical image. Unfamiliar plants are impossible to recognize in these depictions because they are so far removed from a precise, true-to-life representation.[19]

Of the 111 woodcuts[20] in the *Herbarium Apulei*, 61 are purely decorative – perhaps coloured with the help of stencils. They are very limited in their use of colour: leaves are green, roots are brown and flowers or animals are brownish orange-red. Animals appear on a number of woodcuts to indicate that the plant provides an antidote to the bite of the depicted animal. Other additional animals or people do not represent the natural environment but serve more to conceptualize the effects of a given plant. An exact observation of nature is not the intent of the images. Is external appearance really important? In any case, neither the internal structure nor the precise composition of the plant is given primary importance.

The illustrated double page reproduced here (ill. 2, p. 60) show two plants. On the left, the *Herba pes leonis* or lady's mantle and on the right, the *Herba scelerata*, also known as celery-leaved buttercup or *Ranunculus sceleratus*. The lady's mantle has side branches that sprout from the main stalk in blossoming pairs. According to the text it 'flourishes around fields and graves and along areas where bloodsuckers are found' ('*Nascitur circa campos; circa fosfas & hyrudineta*'). The following instructions are given for medicinal use of the plant: cook seven fruits without the root during a waning moon and use the resulting liquid to wash in front of the door on the first night. Take another herb, the birthwort (*Aristologiam*), and light it from below so that it is permeated with smoke. If you do this and leave the house without turning around, the weakened patient will improve ('*Si quis defectus fuerit*'). The text accompanying the *Herba scelerata* on the following page relates that the plant grows in boggy areas and that it is poisonous even in small amounts, but that it heals tumours and boils.

The *Herbarium Apuleii Platonici* is the only work among the incunabula of the Liberna Collection that can be regarded as belonging to botanical literature in the strict sense of the word. Still, there are other works from the incunabula period that are relevant for our topic. The collection includes, for example, a Dutch translation of Bartholomaeus Anglicus' *On the Properties of Things, Boeck van den proprieteyten der dinghen,*[21] printed in Haarlem in 1485 by Jacob Bellaert (ill. 3, p. 62). Chapter seventeen of the nineteen is devoted to 'trees and herbs' although without illustrations; there are only descriptions. Another relevant publication is the popular German medical compendium *Versehung von Leib, Seele, Ehre und Gut,*[22] printed in 1489 by Peter Wagner in Nuremburg. It consists only of a title woodcut, printer's mark and 150 woodcut initials based on Israhel van Meckenems's *Grote Alfabet in Kapitalen*. This text provides medical advice in areas such as childbirth, child rearing, bloodletting and pharmaceutics. Contrasting with this, the first German edition of Petrus de Crescentiis's voluminous textbook, *Ruralia commoda*,[23] printed in Speyer in 1493 by Peter Drach, is exceptionally richly illustrated with a total of 297 column-wide woodcuts (ill. 4). Although the *Ruralia commoda* is devoted primarily to agriculture, it also includes numerous herb and plant entries. Crescentiis was a scientist, doctor and lawyer. In twelve well-organized volumes, he covers the topics of soil science, planting, horticulture, animal husbandry and hunting, but also the cultivation of vineyards, orchards, vegetables and medicinal plants. We find 124 of them in the sixth chapter on

6.
Hieronymus Braunschweyg, *Haußapotheck [...]*, Augsberg: Hans Zimmermann, 1549. Dim. 194 x 149 x 15 mm. Mettingen, DCL W 719. Title woodcuts.

7.
Albertus Magnus, *Daraus man alle heimligkeit desz Weiblichen geschlechts erkennen kann [...]*, Frankfurt am Main: Johann Schmidt for Sigmund Feyerabend, 1581. Dim. 204 x 166 x 10 mm. Mettingen, DCL A 37. *Naterwurz* (arum) and *Goltwurze*.

8. ▷
Dit is de genochlike[n] Garde der suntheyt, Lübeck: heirs of Steffen Arndes, 1520. 272 x 210 x 58 mm. Mettingen, DCL W 792. *Ambrosia* and *Antheos*.

horticulture, 115 of which bear plant motifs (ill. 4, p. 56).

In comparison to the *Herbarium Apuleii Platonici*, tremendous progress can be seen in the illustrations of the afore-mentioned *Herbarius latinus*, that was published by Peter Schöffer in Mainz in 1484. Although the woodcuts are not true-to-life, the plants are recognizable (compare ill. 8, p. 59). This is due to the way in which the distinguishing characteristics of the flowers and leaves are depicted. In addition, it is the first time that the various stages of florescence are included. Nevertheless, it would not be until the sixteenth century for real strides to be made in the naturalistic botanical representation of plants.[24] The developments in book printing were of inestimable value for botany, providing illustrations in a standardized form and of uniform quality.

Nature Study – A Closer Look at Botanical Illustrations in the Sixteenth Century

The publications of the 'fathers'[25] of botany – Otto Brunfels, Hieronymus Bock and Leonhart Fuchs – mark the beginning of a different manner of thinking. The tradition and authority of classical authors both give way to such things as personal observation, careful representation and clear systematization, to a more scientific determination of plants in other words. The collation of old and new knowledge increased significantly. A striking example of this is the Latin *Herbarum vivae eicones ad naturae imitionem* by the botanist and doctor Otto Brunfels (1488-1534), that was published by Johann Schott in Strasbourg in 1531. There was also the *Kreütter Buch ('*Herb Book') by the botanist Hieronymus Bock (1498-1554) from 1539.[26] A breakthrough can be seen in the representation of plants in Brunfels' *Contrafeyt Kreuterbuch ('Imitation Herb Book'),* in which we find the very naturalistic work of Hans Weiditz (*c.* 1500-1536), a student of Albrecht Dürer.[27] Nonetheless, the artist still fails to see that the representation of a plant must offer a characteristic 'prototype' of a given plant to make it possible to identify it correctly. On the other hand, the printed illustrations offer beautiful examples of an individual specimen; they are true-to-life, almost photo-



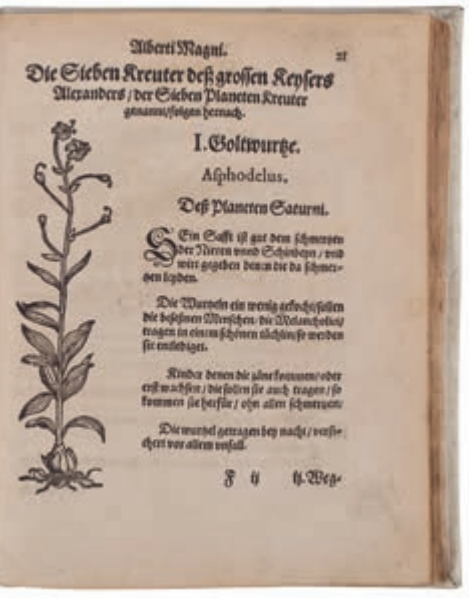


graphic reproductions, complete with withered or broken leaves (ill. 27, p. 50).

A first attempt at classification and standardization was made in the herbal books of Leonhart Fuchs (1501-1566), a doctor who taught at the university in Tubingen. Fuchs, who is best known for his love of botany (the fuchsia is named after him), devised 'ideal types' as an aid to botanical determination. He includes all of a plant's characteristics as well as its various stages of maturity.[28] His compendium, *New Kreütterbuch* ('New Herb Book'), appeared in Latin in 1542 and in German in 1543; it is seen as the book that clearly sets the field of botany 'on the path to the new age'.[29] The most important criterion of this instructional work is the depiction of each plant with its 'characteristic phenotype', that is to say, attention to all of the observable properties of a plant.[30] While Fuchs continues to cite the classical authors, he adds his own observations, descriptions and insights. In so doing, he takes the step from a pharmacopeia, that had as its selection criterion a plant's therapeutic use, to the objective plant book. In so doing, he emancipated botany, setting it free as an independent science.[31]

Aside from the 'herb books', as the medical-botanical works printed in the fifteenth to seventeenth centuries are simply called, numerous other treatises of a more or less medical nature came into being. Many manuals with a scientific approach dealt with such topics as astrology, physiognomy, chiromancy (palmistry) or midwifery. Among the sixteenth century scientific texts in the Liberna Collection are Leonhart Fuchs's famous work on anatomy *De humani corporis fabrica* (1551, ill. 5, p. 55), Jobst Amman's *Neuw Thierbuch* on animals (1569) and Ludovico de Avila's treatise on the healthy life, *Ein nutzlich Regiment der gesundtheyt* (1531). There is also *Das aller edlest un[d] bewertest Regiment der gesundtheit* (1530) a version of Aristotle's fourth century work. There is the Dutch translation of the '*Regimen sanitatis*' by Magninus of Mediolanensis, *Tregement der ghesontheyt* (1514), and the work on the stars *De scientia motus orbis* (1504) by the Jewish astronomer Messahalah (*c.* 740-815).[32] In addition, there are a few books that are more or less directly related to the field of pharmacology. Among them is the *Haußapoteck* or 'Home Apothecary' by the Strasbourg physician Hieronymus Braunschweyg (*c.* 1420 - *c.* 1512), also known as Brunschwig.[33] Braunschweyg, is famous for his *Das ist das Buch der Cirurgia*, which was the first book on surgery in German and his *Großes Destillierbuch* on distillation techniques. He is also known as the doctor who popularized medical knowledge.[34] His 'home apothecary' offers aids for self-treatment that extends to the instructions on the cultivation of plants and herbs (ill. 6, p. 58).[35]

The Liberna Collection includes a rare medical book that is also important for the history of early printing art in pharmacological books, Albertus Magnus's book on the 'mysteries of the female sex' *Daraus man alle heimligkeit desz Weiblichen geschlechts erkenne kann,* from 1581.[36] In addition to a chapter on embryology and all sorts of life rules (for example to be applied during the plague), the book also includes a chapter on herbs and their effects. The most common medicinal plants are described, accompanied by 23 very basic woodcuts


Alberti Magni. 21

Die Sieben Kreuter deß grossen Keysers Alexanders / der Sieben Planeten Kreuter genannt / folgen hernach.

I. Goltwurtze.

Asphodelus.

Deß Planeten Saturni.

Sein Safft ist gut dem schmertzen der Nieren und Schinbeyn / und weist gegeben denen die da schmertzen leyden.

Die Wurtzel ein wenig geschabet / die besessnen Menschen / die Melancholey tragen in einem schwartzen tüchlin / so werden sie entlediget.

Kinder denen die zähne kommen / oder erst wachsen / die solten sie auch tragen / so kommen sie herfür / ohn allen schmertzen.

Die wurtzel getragen bey nacht / versichert vor allem unfall.

F ij th. Weg-


Sinchcos. Rosemarynt. Rosdorp. xviii. Cap





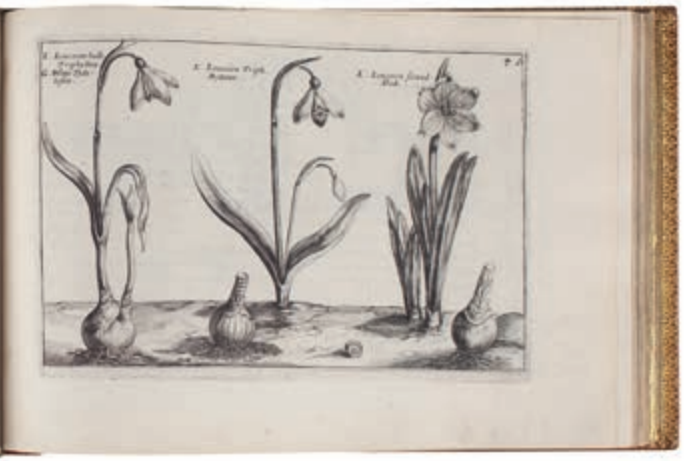




LEVCOIVM BVLBOSVM TRIPHYLLON.
TRIVM GENERVM.

IRIS ELLERS





13. ◁ ◁
Henrik Cause, *De koninglycke hovenier […]*, Amsterdam: Marcus Doornick, [1676], p. 73. Dim. 336 x 215 x 42 mm. Mettingen, DCL A 69. *Angelier* (carnation), *Helleboris, Sysirinchium* (lily sort), *Martagon* (lily sort) and *Tylos*.

9.
Le iardin de sante, Paris: Philippe le Noir, 1529-1539. Dim. 344 x 226 x 67 mm. Mettingen, DCL W 748. *Apium siluestre, Apium rusticum, Apium emorroidarum* and *Appios*.

10. ◁ ◁
Johan and Caspar Commelin, *Horti Medici Amstelodamensis Rariorum Plantarum Descriptio & Icones […]*, Amsterdam: Pieter and Joan Blaeu, 1697-1701. Dim. 400 x 275 x 54 mm. Mettingen, DCL W 419 I. *Haemanthus Africanus*.

12.
Crispijn van de Passe the Younger, *Hortus Floridus*, Arnhem: Johannes Janssonius for Crispijn van de Passe, *c.* 1614. Dim. 182 x 274 x 28 mm. Mettingen, DCL W 235. *Leucoium.*

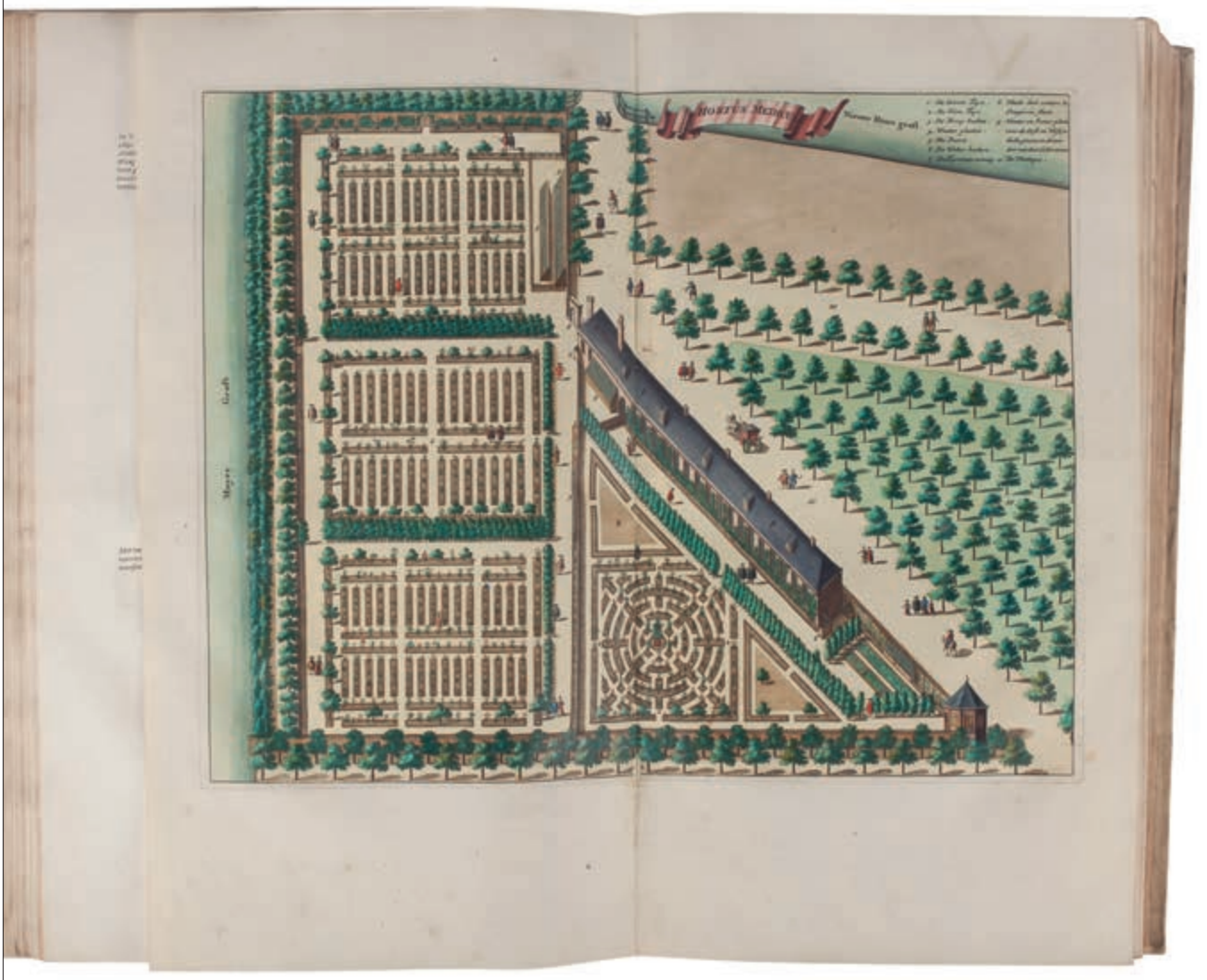
(ill. 7). Also found in the Liberna Collection are two copies of the *Hortus sanitatis* (also known as *Gart der Gesundheit*, the 'Garden of Health') that, as we have said, is one of the classic books of botanical plant illustrations. One is a Low German publication, printed in 1520 by the descendants of Steffen Arndes in Lübeck (ill. 8, p. 59) and the other is a French publication put out by the Parisian printer Philippe le Noir (ill. 9, p. 61).[37] Neither of the publications offers any innovation in their botanical illustrations. They are reprints in the vernacular of Schöffer's publication of 1484/85 and contain the same illustrations as in the earlier book.[38]

A Preview – Further Developments in Botanical Illustration in the Seventeenth Century

As of the sixteenth century, there was an increased desire for reliable plant illustrations and plant books became more and more important as an aid to the identification of types. In addition, there was the exceptional development in modern botany in the evolution of gardens. They were no longer limited to traditional uses and forms; more and more, there was an interest in counting, collecting, naming and organizing the most unusual plant sorts for many different purposes. It was no longer just a matter of domestic types, but also foreign and exotic plants. Botanical gardens were created and opened to physicians, pharmacists, surgeons and their assistants. Since botany was considered in 1533 to be a sub-category of medicine, these gardens were used for research purposes at university medical faculties. The first botanical

garden was planted in Pisa in 1543, after which the phenomenon spread across the rest of Europe.

From the seventeenth century on, documentation on the gardens and the plants cultivated there was frequently gathered in large-scale illustrated books. That was also the case for the Hortus Botanicus in Amsterdam. Jan Commelin (1629-1692), a botanist and merchant, was one of the initiators of the garden that was started in 1682. It was to a large extent a result of the new goods coming into Europe from the Dutch colonies, as the collection was initially a 'by-product' of the trading of the East and West India Companies. This is how the extensive two-volume publication of Jan and Caspar Commelin came into existence: *Horti Medici Amstelodamensis Rariorum Plantarum -Descriptio & Icones. Beschrijvinge en curieuse afbeeldingen van rare vreemde Oost-West-Indische en andere gewassen -vertoont in den Amster-damsche kruydhof*. ('Description and Curious Illustrations of Rare East-West Indies Plants and Others in the Amsterdam Herbal Garden').[39] The volumes were printed in 1697 by Pieter and Joan Blaeu in Amsterdam. They included five heraldic pages and 224 illustrations (ill. 10, p. 60). It was



11. ◁
Casper Commelin, *Beschryvinge van Amsterdam*, Amsterdam: Abraham Wolfgang, Johannes Janssonius van Waesberge, Hendrick Boom and Rembertus Goethals, 1693, vol. 2, between pp. 654 and 655.
Dim. 380 x 250 x 80 mm. Mettingen, DCL W 524 II. The hothouse in the *Hortus Medici* in Amsterdam. Dim. print 272 x 353 mm.

14.
Herman Saftleven, *Calendula Africana*, 1683. Dim. 347 x 249 mm. Mettingen, DCL D 134.

the first edition of these botanical works on the rare, sometimes exotic plants and flowers that flourish in the *Hortus Medici* in Amsterdam. The Hortus Botanicus of Amsterdam erected a heated greenhouse at the end of the seventeenth century and grew not only decorative plants, but also herbs for medicinal use (ill. 11, p. 62).

Over the course of the seventeenth century botany gained an independent place among the sciences. Plants were no longer solely important for their medicinal qualities. The study, categorization and classification of plants became a goal in itself. The *Hortus floridus* (*c.* 1614) by Crispijn van de Passe is a good example of this.[40] Arranged according to the seasons, its 166 engravings – to a great extent scored with the burin by Van de Passe himself – depict flowers, trees and shrubs (ill. 12, p. 61). Other examples of the new approach are the first two editions of the collected publications on Dutch landscape design: Hendrik Cause's *De koninglycke hovenier […]* (The Royal Gardener) (ill. 13, p. 60) and Jan Commelin's *Nederlandtze hesperides* (Dutch Hesperides) (1676).[41] Cause's publication describes about 420 plants and how to grow them, whereas Commelin's work is devoted to citrus fruits and how to grow them, supplemented by depictions of a number of famous orangeries.

There was a scientific interest in the search for and identification of plants and in the orderly mapping of the wealth of varieties, but botany was turning into a hobby. The passion for collecting and cultivating plants is apparent in the artistically designed ornamental gardens and their accompanying printed publications. Another reflection of the popular interest in botany in this period is the increasing number of books of dried, pressed plants (*herbarium vivum*). Numerous surviving collections of plant drawings, or fragments thereof, have been preserved and represent a completely different type of botanical illustration. A precursor to this trend is seen in the rendering by Utrecht artist Herman Saftleven (1609-1685) (ill. 14, p. 63). Between 1680 and 1684, Saftleven produced dozens of botanical drawings commissioned by the very wealthy Agneta Block (1629–1704). They were based on rare and unusual plants that she grew at her country home Vijverhof on the Vecht River. Saftleven's precise depiction indicates that the drawings were made for purely scientific purposes. The hundreds of drawings that Agneta Block gathered in her 'Flower Books' bear witness to a new kind of rage in collecting.[42]



NOTES

[1] The Liberna Collection that was kept in Hilversum (Netherlands) until 2012 was founded by Bernard Brenninkmeijer (1893-1976). It is a prominent and extensive private collection. Since May 2013 it has been preserved as part of the Draiflessen Collection in the Westphalian city of Mettingen in Germany. The collection is made up of manuscripts, miniatures, incunabula, books after 1500, graphics and drawings – mainly from the fifteenth to seventeenth centuries. On the history of the Liberna Collection, see A.T. Folmer-von Oven, 'Liberna Collection – Eine Privatsammlung stellt sich vor', in: *Von der Schönheit der Präzision. Faszination Buchdruck und Grafik mit der Liberna Collection*. [Exhib. cat. Mettingen, published by the Draiflessen Collection]. Hamm 2012, pp. 14-25 as well as, by the same author, 'The Liberna Collection: A Hidden Treasure', in: *CODART eZine* 5 (Winter 2014).

[2] A clear distinction must be made between the pharmacological meaning of the word 'drug' which indicates vegetable, animal or mineral raw materials, generally in powder form, and the current use of 'drug' to mean a narcotic.

[3] One of the most well-known – and oldest – manuscripts of Dioscorides's plant book is the one that was given to the Byzantine princess Anicia Juliana around 512, now in the Austrian National Library, Vienna, Codex medicus Graecus 1, a late classical manuscript compilation in Greek; see for example *Ein Garten Eden. Meisterwerke der botanischen Illustration*. [Exhib. cat. Österreichische Nationalbibliothek]. H. Walter Lack (ed.), Vienna/ Cologne, 2008, cat. 1, pp. 22-31. A somewhat later copy in which some of the illustrations were copied from the same source, dates from the seventh century (Naples, Biblioteca Nazionale, MS Suppl.gr. 28, available online via http://www.wdl.org/en/item/10690/view/1/1/. See the chapters by Chavannes-Mazel in this book.

[4] For example, the oldest surviving manuscript from the sixth/seventh century, currently housed in the Leiden University Library, MS VLQ 9.

[5] Compare W.-D. Müller-Jahncke, 'Die botanische Illustration des 14. und 15. Jahrhunderts in Italien', in: W. Prinz and A. Beyer (eds.), *Die Kunst und das Studium der Natur vom 14. zum 16. Jahrhundert*. Weinheim 1987, p. 76. For printed publications, see the *Incunabula Short Title Catalogue* (ISTC), the *Gesamtkatalog der Wiegendrucke* (GW) and the *Verzeichnis der Drucke 16./17. Jahrhundert* (VD16/17).

[6] On the relationship between humanism and botanical scholarly literature, see for example P. Dilg, 'Die Pflanzenkunde im Humanismus – Der Humanismus in der Pflanzenkunde', in: R. Schmitz & F. Krafft (eds.), *Humanismus und Naturwissenschaft*. Boppard 1980. Beiträge zur Humanismusforschung, Band VI, pp. 113-134.

[7] ISTC ipo0801000: Gaius Plinius Secundus, the Elder, *Historia naturalis [Italian]*. Venice: Nicolas Jensen, 1476.

[8] ISTC ico0842000: Conrad von Megenberg, *Buch der Natur*. Augsburg: Johann Bämler, 30.10.1475.

[9] Compare M. Krenn, 'Einleitung', in: M. Effinger & K. Zimmermann (eds.), *Löwen, Liebstöckel und Lügensteine. Illustrierte Naturbücher seit Konrad Mengenberg*. [Exhib. cat. University Library of Heidelberg]. Heidelberg 2009. Schriften der Universitätsbibliothek Heidelberg 9, p. 7.

[10] ISTC ih00062000: *Herbarius latinus*. Mainz: Peter Schöffer, 1484.

[11] ISTC ig00097000: Johann von Cube, *Gart der Gesundheit*. Mainz: Peter Schöffer, 28.03.1485.

[12] K.E. Heilmann et al., *Kräuterbücher in Bild und Geschichte*. Munich 1973, p. 17; I. Müller & W. Dressendörfer (eds.), *Gart der Gesundheit. Botanik im Buchdruck von den Anfängen bis 1800*. [Exhib. cat. Schweinfurt]. Halle an der Saale 2011. Kataloge der Franckeschen Stiftungen, vol. 26; Veröffentlichungen des Stadtarchivs Schweinfurt, vol. 24.

[13] Draiflessen Collection (Liberna), Mettingen, Sign. Inc 88: Apuleius Barbarus of Platonicus (Pseudo), *Herbarium Apulei Platonici ad Marcum Agrippam*. [Rome]: Johannes Philippus de Lignamine, [before Oct. 1483] (ISTC ih00058000); paper, 4°, 20.6 × 14.1 cm., (2), 91 (of 108), (2) ff., 111 (of 132) woodcuts, of which 110 plant woodcuts, 61 coloured, one four-line drawn initial, 26 lines, Roman lettertypes.

[14] See also: I. Mentrup, 'Apuleius Barbarus oder Platonicus (Pseudo): Herbarium Apulei Platonici', in: Exhib. cat. Mettingen, op. cit. (n. 1), cat. 10, pp. 130-131.

[15] Compare for example, GW 2300; only 41 of the approximately 125 to 150 printed copies in the world have been preserved; see also G. Keil, '"Gart", "Herbarius", "Hortus". Anmerkungen zu den ältesten Kräuterbuch-Inkunabeln', in: G. Keil (ed.), *Gelêrter der Arzenie, ouch Apotêker. Beiträge zur Wissenschaftsgeschichte*. Wellem 1982. Würzburger medizinhistorische Forschungen 24, p. 591.

[16] 'Conzaga', see GW 2300; the second copy that uses the name 'Gonzaga' is found in the John Rylands Library in Manchester.

[17] A.C. Klebs, *A Catalogue of Early Herbals, Mostly from the Well-known Library of Dr. Karl Becher, Karlsbad, with an introduction. Herbal Facts and Thoughts*. Lugano 1925. L'art Ancien Bull. 12, vol. XXIV; C. Nissen, *Die botanische Buchillustration. Ihre Geschichte und Bibliographie.* 2 vols., Stuttgart 1951, vol. 1, p. 27 and vol. 2, p. 220; Heilmann, op. cit. (n. 12), p. 88 f.

[18] Nissen, op. cit. (n. 17), pp. 26-27.

[19] *Collectio Weigeliana. Die Anfänge der Druckerkunst in Bild und Schrift an deren frühesten Erzeugnissen in der Weigel'schen Sammlung*, T.O. Weigel & A.C. Zestermann (eds.), vol. 1, Leipzig 1866, pp. 111-112; Nissen, op. cit (n. 17), vol. 1, p. 27; Müller-Jahncke, op. cit. (n. 5), p. 76; W. Dressendörfer, 'Zum Bild der Pflanze in den frühen Kräuterbüchern', in: Heilmann, op. cit. (n. 12), pp. 27-29.

[20] The copy in the Liberna Collection is incomplete.

[21] Draiflessen Collection (Liberna), Mettingen, Sign. Inc. 107: Bartholomaeus Anglicus, *Boeck van den proprieteyten der dinghen*. Haarlem: Jacob Bellaert, 24.12.1485 (ISTC ib00142000); paper, 2°, 446 ff., 11 woodcuts, generally with capital letters in red/blue alternatively, 40 lines, 2 columns, Gothic lettertypes.

[22] Draiflessen Collection (Liberna), Mettingen, Sign. Inc. 90: *Versehung von Leib, Seele, Ehre und Gut*. Nürnberg: Peter Wagner, 1489 (ISTC iv00235000); paper, 4°, 182 ff., 2 woodcuts, 150 woodcut initials, 28 lines, Gothic lettertypes.

[23] Draiflessen Collection (Liberna), Mettingen, Sign. Inc. 48: Petrus de Crescentiis, *Petrus de Crescentius zu teutsch mit figuren*. [Speyer: Peter Drach], 1.10.1493 (ISTC ic00971000); paper, 2°, 234 ff., 297 woodcuts, 44 lines, 2 columns, Gothic lettertypes.

[24] For the illustrations, see the *Herbarius latinus* Keil, op. cit. (n. 15), pp. 596-597.

[25] This nomination comes from Kurt Sprengel: Diss. 1811.

[26] VD16 B 8500: Otto Brunfels, *Herbarum vivae eicones ad naturae imitionem […]*. Strasbourg: Johann Schott, 1532 (1531). VD16 B 6015: Hieronymus Bock, *New Kreütter Buch […]*. Strasbourg: Wendelin Rihel de Oude, 1539.

[27] VD16 B 8506: Otto (Otho) Brunfels, *Contrafayt Kräuterbuch*. Strasbourg: Hans Schott, 1532.

[28] For Fuchs and G. Rath among others, see 'Fuchs, Leonhart', in: *Neue Deutsche Biographie (NDB)* 5 (1961), pp. 681-682.

[29] VD16 F 3243: Leonhart Fuchs, *New Kreüterbuch […]*. Bazel: Michael Isengrin, 1543; the preliminary drawings were made by the painters Heinrich Füllmaurer and Albrecht Meyer, the woodcarver was Veyt Rudolf Speckle. Heilmann, op. cit. (n. 12), cat. 16, pp. 100 ff.

[30] Heilmann, op. cit. (n. 12), cat. 16, p. 101.

[31] Heilmann, op. cit. (n. 12), cat. 16, p. 101.

[32] Draiflessen Collection (Liberna), Mettingen W 664: Leonhart Fuchs, *De humani corporis fabrica, ex Galeni & Andreae Vesalii libris concinnatae, epitomes pars prima, duos, unum de ossibus, alterum de musculis, libros complectens*. Tübingen: Ulrich Morhart, 1551. Draiflessen Collection (Liberna), Mettingen W 434: Jobst Amman, *Ein neuw Thierbuch*. Frankfurt am Main: M. Lechler for Sigmund Feyerabend, 1569. Draiflessen Collection (Liberna), Mettingen W 816 A: Ludovico de Avila, *Ein nutzlich Regiment der gesundtheyt*. Augsburg: Heinrich Steiner, 1531. Draiflessen Collection (Liberna), Mettingen W 816 B: Aristoteles, *Das aller edlest un[d] bewertest Regiment der gesundtheit*. Augsburg: Heinrich Steiner, 1530. Draiflessen Collection (Liberna), Mettingen W 813: Mediolanensis, *Tregement der ghesontheyt*. Brussels: T. van der Noot, 1514. Draiflessen Collection (Liberna), Mettingen W 690: Messahalah, *De scientia motus orbis*. Nürnberg: J. Weissenburger, 1504.

[33] Draiflessen Collection (Liberna), Mettingen W 719: Hieronymus Braunschweyg, *Haußapoteck, zu yedñ Leibs gebresten, fur den gemainen mañ, unnd das arm Landvolck*. Augsburg: Hans Zimmermann, 1549. Vgl. Mentrup, op. cit. (n. 14), pp. 210-211.

[34] ISTC ib01225000: Hieronymus Brunschwig, *Das ist das buch der Cirurgia*. Strasbourg: Johann Grüninger, 4.7.1497. VD16 B 8698: Hieronymus Brunschwig, *Liber de arte Distillandi de Compositis. Das buch der waren kunst zu distillieren […]*. Strasbourg: Johann Grüninger, 1512.

[35] The mentioned publications form a focus in the cabinet exhibition 'Stay Healthy' (10.06.2021-31.10.2021, Draiflessen Collection, Mettingen) on the holistic understanding of health in the sixteenth century and are accordingly part of the accompanying publication (with more recent research literature): Exhib. cat. Mettingen 2021.

[36] Draiflessen Collection (Liberna), Mettingen A 37: Albertus Magnus, *Daraus man alle heimligkeit desz Weiblichen geschlechts erkennen kann. Deszgleichen von ihrer geburt, sampt mancherley artzney der Kreuter*. Frankfurt am Main: Johann Schmidt für Sigmund Feyerabend, 1581.

[37] Draiflessen Collection (Liberna), Mettingen W 792: *Dit is de genochlike[n] Garde der suntheyt*. Lübeck: Inheritance of Steffen Arndes, 1520. Draiflessen Collection (Liberna), Mettingen W 748: *Le iardin de sante*. Paris: Philippe le Noir, 1529-1539.

[38] For example, Keil, op. cit. (n. 15), pp. 606-607.

[39] Draiflessen Collection (Liberna), Mettingen W 419 I-II: Jan & Caspar Commelin, *Horti Medici Amstelodamensis Rariorum Plantarum Descriptio & Icones. Beschrijvinge en curieuse afbeeldingen van rare vreemde Oost- West-Indische en andere gewassen vertoont in den Amsterdamsche kruydhof*. Amsterdam: Pieter en Joan Blaeu, 1697-1701.

[40] Draiflessen Collection (Liberna), Mettingen W 235: Crispijn van de Passe de Jonge, *Hortus Floridus*. Arnhem: J. Janssonius voor Crispijn van de Passe, around 1614.

[41] Draiflessen Collection (Liberna), Mettingen A 69: Hendrik Cause, *De koninglycke hovenier aanwyzende de middelen om Boomen, Bloemen en kruyden te zaayen, planten, aenqueeken en voortteelen*. Amsterdam: Marcus Doornick, 1676. Draiflessen Collection (Liberna), Mettingen A 69: Jan Commelin, *Nederlandtze Hesperides, dat is, oeffening en gebruik van de limoen- en oranje-boomen; gestelt na de aardt, en climaat der Nederlanden*. Amsterdam: Marcus Doornick, 1676.

[42] A.T. Folmer-von Oven, 'Herman Saftleven: Afrikanische Ringelblume', in: Exhib. cat. Mettingen, op. cit. (n. 1), cat. 56, p. 234.

ABOUT THE AUTHOR

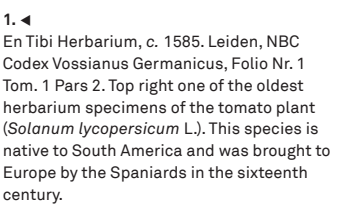
Iris Ellers (1980) is the curator of the Liberna Collection which was transferred in 2012 on permanent loan to the Draiflessen Collection in Mettingen, Germany. She studied history and historical auxiliary sciences at the University of Münster, Westphalia, Germany. Manuscript studies was one of her specialisations, in particular incunabula. Since 2008, she has been working as curator at the Draiflessen Collection and has been involved in the preparation of numerous exhibitions and catalogues.

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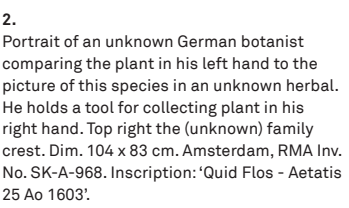
‘EVERLASTING GARDENS’ ORIGIN, PURPOSE, SPREAD AND USE OF THE FIRST HERBARIA


213
Spica cœlstis
214. Salsuca
Puma Amoris

Gerard Thijsse



1. ◂
En Tibi Herbarium, *c.* 1585. Leiden, NBC Codex Vossianus Germanicus, Folio Nr. 1 Tom. 1 Pars 2. Top right one of the oldest herbarium specimens of the tomato plant (*Solanum lycopersicum* L.). This species is native to South America and was brought to Europe by the Spaniards in the sixteenth century.



2.
Portrait of an unknown German botanist comparing the plant in his left hand to the picture of this species in an unknown herbal. He holds a tool for collecting plant in his right hand. Top right the (unknown) family crest. Dim. 104 x 83 cm. Amsterdam, RMA Inv. No. SK-A-968. Inscription: 'Quid Flos - Aetatis 25 Ao 1603'.

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600*.
Amsterdam: Amsterdam University Press, 2022
doi 10.5117/9789463726191_ch03

Abstract
Only when paper, which is a much better material for drying living plants than parchment, became available more widely and more cheaply after the invention of the printing press (around 1450) did a *herbarium vivum* came within everyone's reach. It is therefore investigated why the first herbaria apparently came into being only in the second quarter of the sixteenth century and whether there may have existed older ones. Another question, addressed here, is where the cradle of the herbarium stood: Italy or England? What purpose did they serve and was the physician and botanist Luca Ghini (1490-1556) really the one who made the first herbarium at the time he was teaching *materia medica* at the Bologna university, as is generally assumed, or was the inventor someone else? Furthermore, the still extant and lost herbaria are discussed in this chapter.

Keywords: history of botany, 16th century herbaria

Introduction
'Have them bring back placed between paper small branches with their leaves, fruits and flowers whenever possible of: nutmeg, both male and female species, black pepper, white pepper, long pepper betel, cubeba'.[1] Thus begins the request for dried plants from Carolus Clusius (1526-1609), the first prefect of the Leiden botanical garden, to the apothecaries and surgeons aboard the ships of the old East India Company. Apart from nutmeg (*Myristica fragrans* Houtt.) and different kinds of pepper (*Piper* spp.), he also asked for 'small branches of all other kinds of trees that grow there, along with their leaves and fruits'. These small branches 'placed in paper' can only be pressed, dried specimens, just like we still find in herbaria today.[2]

When Clusius wrote this request in 1601, the use of herbaria was already fairly common. As far as we know now, the earliest herbaria appeared around 1540. The word 'herbarium' is used here to refer to a collection of plants mounted on paper, dried under pressure in order to preserve them and brought together as an instrument to study botany. The technique of conserving plants and flowers in this way was already known in the fourteenth century.[3] Then why did it take so long before the first herbaria were made? Exactly when was the first one made? Who made it and can he be called its 'inventor'? Why did that happen at precisely that moment in history? What is the oldest surviving herbarium? Were they all made for the same reason? How did the use of herbaria spread from the place of their origin? These are questions that are raised here and an attempt is made to answer them based on the still existing sixteenth-century herbaria, together with what is known about the subject from written and printed sources of the time.

The oldest herbaria
For centuries, the word herbarium had been used to refer to an herbal, a book about medicinal plants or a book with illustrations of plants (ill. 2), and it retained that meaning until well into the eighteenth century.[4] This makes it often difficult to determine with any certainty whether or not what is referred to in older texts as such is a 'true' herbarium. Even when there is reference to a collection of dried plants, we cannot conclude that it is an herbarium if it is not specified in which way the plants were dried. The collection of dried plants, for instance, supposedly kept by the Silesian physician Thomas of Sarepta (1298-*c.* 1378), would have been a collection of air-dried simples.[5] Simples or 'simplicia' are singular medicines chiefly of botanical origin, which can be used as they are found in nature, in contrast to 'composita' or compound medicines requiring multiple ingredients. Such collections of simples were not only maintained by herb collectors and apothecaries, but by physicians as well.

The lost herbaria of the Englishmen John Falconer and William Turner
The earliest reference in literature to what must have been a 'true' herbarium is found in the commentaries on Dioscorides (1553) by the Portuguese physician Amatus Lusitanus (1511-1568). He writes that he had met an Englishman in


QVID FLOS
ÆTATIS: 25
A 1603.


Tom. Sextus Plantar.
Vlyxis Aldrouandi.

3.
Herbarium of Ulisse Aldrovandi (*Erbario Aldrovandi*), front cover of the sixth volume, 1553. Bologna, UB. Ulisse Aldrovandi was professor of natural history at the University of Bologna.

Ferrara named John Falconer, who on his travels had collected a large number of plants that he kept pasted in a book.[6] Amatus was invited in 1540 by Ercole II (1508-1559), the Duke of Ferrara, to come to Ferrara to teach medicine. In May 1547 he moved to Ancona.[7] This meeting must therefore have taken place between 1540 and 1547.

Falconer's book was also seen by his friend, the English protestant preacher and physician William Turner (1508?-1568). Because of the religious conflicts in England, Turner had gone abroad in voluntary exile in 1540. After his arrival in Italy, he attended the lectures of Luca Ghini (1490-1556) in Bologna and in Ferrara he studied medicine under Antonio Musa Brasavola (1500-1555).[8] From Italy, Turner travelled northward. On the way he visited the naturalist Conrad Gesner (1516-1565) in Zürich, whom he befriended. In 1542 he took up residence in Basel, and the following year in Cologne. Most likely he then travelled to East Frisia where he became physician to the court of Emden (Germany). In the southern Netherlands he visited Louvain and the Antwerp pharmacist Pieter Coudenberg (*c.* 1519-*c.* 1599). Only in 1547, when Edward VII ascended the throne, did it become safe for him to return to England.[9] In London, he published the first part of his famous *A New Herball* (1551).

After the Catholic ruler Mary I, came to the throne in 1553, Turner had to flee to the continent for a second time.[10] 1558 he could return to England once again. Although it is quite possible that Turner saw Falconer's book in Italy in the early 1540s, he writes in the second volume of his herbal (1562), when he describes a plant known in England as 'sea trifoly' (sea milkwort, *Lysimachia maritima* (L.) Galasso, Banfi & Soldano), that he had never seen it in England except in a book that Falconer had brought from Italy.[11]

Just like Falconer, Turner had compiled an herbarium. Evidence for this is also given in the second part of his herbal. In his description of the pistachio tree (*Pistacia vera* L.), known at that time in England as 'fistick nut', Turner mentions that he had seen it in Bologna, and for seventeen years kept proof of this in a book.[12] When he writes about the plant 'spikenarde', he mentions that in the year 1557 there were not as many simples to be found anywhere in Germany as there were in Venice.[13] Together with the following, these phrases are the key for dating Turner's herbarium. The second volume of Turner's herbal was not published in London, but in Cologne in 1562. Since he had returned to England in 1558, we can reasonably infer that Turner had left his manuscript behind with the printer in Cologne and therefore 1557 could be considered the year it was finished by him. This means, that Turner apparently collected plants, perhaps in Bologna, as early as 1540.

What happened with Turner's herbarium after his death in 1568 is unknown. It was possibly inherited by his son Peter Turner (*c.* 1542-1614). In his will, Turner had left all his written books to him. Were Peter to become a priest, he would also inherit the theological books; and if he were to become a physician, all of the medical books as well.[14] Since Peter later became a physician, he would have inherited his father's medical library – possibly including his father's herbarium. Whether or not Peter made an herbarium himself remains unknown, but it is known that he has sent (herbarium?) specimens of English plants to Johann Bauhin (1541-1612), presumably after the death of his father in 1568 and before his own death in 1614.[15]

Gherardo Cibo or Francesco Petrollini

The title of 'oldest extant' herbarium is often given to an herbarium kept at the Biblioteca Angelica in Rome. This collection consists of two different parts, one of which ('erbario A') is older than the other ('erbario B'). At the beginning of the twentieth century both were attributed to the amateur herbalist and botanical illustrator, Gherardo Cibo (1512-1600). The oldest part was dated 1530-1532 and the later part 1543-1550.[16]

From his earliest years, Cibo explored wild regions and inaccessible parts of the Apennines in search of new plant species to paint '*ad vivum*'.[17] His father was a prominent figure at the papal court and had distinguished himself in various military campaigns and diplomatic missions for the pope. He must have had a similar career in mind for his son, because in 1529 Gherardo joined the retinue of Francesco Maria delle Rovere (1490-1538). During the Second Habsburg-Valois War (1526-1530), Rovere had been supreme commander of the Army of the Holy League. In this war Charles V prevailed and was crowned Holy Roman Emperor in Bologna in February 1530. In the coronation procession Rovere took part as the carrier of the sword of the empire. As a member of Rovere's entourage, Cibo arrived in Bologna at the end of 1529.[18] There he could have studied with Ghini, plausible because Ghini had an interest in plants and he would have taught Cibo then how to make an herbarium. In 1532, Cibo travelled with his father to the court of Charles V in Regensburg and their journey took them to the north of Italy (Trentino).[19] Since the oldest part of the herbarium contains plants that grow in the Alps near Trent, it was assumed that they were collected by Cibo during this journey and that 'erbario A' should be dated between 1530 and 1532.[20]

In 1534, Cibo went to visit his uncle at Agnano, from where he made trips around Pisa. In 1539 he was at the court of Charles V again, this time in Spain. He followed the emperor on a tour to the Low Countries, remaining in Ghent until May 1540. Hereafter, Cibo must have decided that he was not cut out for a military and diplomatic career and retreated to Rocca Contrada (Arcevia). There he devoted himself to his old pas-

4.
Herbarium Rauwolff, 1573-1575, fourth volume. Leiden, NBC Codex Vossianus Germanicus, folio N1 Tom. 4. Opened on the page with the Lebanon cedar (*Cedrus libani* A. Rich.).

5. ▷
Herbarium Rauwolff, 1563, third volume opened at the page with an edelweiss (*Leontopodium alpinum* Cass.). Next to the plant Fuchs wrote "soll gerissen werden" (with index finger pointing, top left), because he wanted to depict this plant in a new edition of his herbal *De historia stirpium commentarii*.

sion, painting plants.[21]

The attribution to Cibo has led to a lively discussion in which the younger part, 'erbario B', was first attributed to the naturalist Ulisse Aldrovandi (1522-1605), but eventually to Francesco Petrollini from Viterbo.[22] Petrollini was a physician in Cotignola and a friend of and botany tutor to Aldrovandi.[23] There seems to be consensus now that Petrollini was the collector of the plants in 'erbario B'.[24] Petrollini may also have been responsible for 'erbario A'. Officially, however, 'erbario A' is still attributed to Cibo, although less credence is now given to the early dating.[25] It has now been dated from between 1550 and 1553.[26]

The herbarium in Florence attributed to Michele Merini

According to Stafleu, the oldest surviving herbarium from about 1545, as far as he knew at the time, is an herbarium attributed to Michele Merini, a priest and amateur herbalist from Lucca. In Bologna, for a period of time, Merini had followed lessons taught by Ghini. Stafleu believed that Merini may have made the herbarium for the purpose of documenting his botanical lessons.[27] However, the attribution to Merini has recently been refuted.[28] This herbarium contains about 200 plants that are believed to have been gathered in the botanical garden of Pisa.[29]

Did older herbaria exist?

Is it possible that other, even older, herbaria have existed? The literature does not indicate that any were created before 1540. In his novel *Gargantua*, the French author François Rabelais (1483?-1553), who had studied medicine around 1530 in Montpellier, described how botany was practiced at that time: 'They returned home walking through a meadow, or a different place where plants grew, studied the plants and trees, and compared them to the books written by the




115.


Viertes Kreutter
buech
darin vil schöne vnd kemb
de Kreutter durch den Hochgelerten herrn Leon
hart Rauwolffen der Artzney Doctorn vmb der
Stat Augspurg bestellten Medicum gar fleissig eingelegt
vnd auffgemacht worden. Welche er nit allain in Piemont
vmb Nissa vnd in der Provincia vmb Marsilia sonder auch
in Syria an dem berge Libano vnd Antilibano auch durch
Arabiam neben dem flüss Euphrate in Chaldea Assyria
Armenia Mesopotamia vnd andern orten in seinen mit
Gottes hilff vollbrachten dreyjärigen Kayserl. mit grosser mue
he arbait gefehrlichkait vnd vncosten
bekhumen hat. darvon Er auch in sein
em Kayserbuech so in dem drucke
auss gangen ist meldung
thuet.
Beschehen nach der geburt
vnsers Seligmachers JHESV CHRISTI.
M. D. LXXIII.
LXXIIII. vnd
LXXV. Jar.
ACAD
IVED

6.
Herbarium Rauwolff, 1573-1575, fourth volume, Leiden NBC. Title page with images of Jesus in Gethsemane (above) and the entry into Jerusalem (below). A gardener with a spade (left) and a doctor (right), possibly Rauwolff himself.

ancients: Theophrastus, Dioscorides, [...], who had written about the subject. They carried home handfuls of specimens, together with the equipment necessary for botanising [...]. When it rained, they visited the apothecaries' shops.' There was, however, no mention of an herbarium.[30] Neither was an herbarium mentioned by the German herbalist Otto Brunfels (1488-1534) who, in the first volume of his herbal from 1530, describes the way to conserve plants, but only gives advice on how to dry and store plants for pharmaceutical purposes.[31] It would seem that, at least in Germany and France, a compilation of dried plants was not common practice then.

Yet it was known for hundreds of years that plants could be preserved by drying them under pressure. The bibliophile Bishop Richard de Bury (1287-1345) complained about the bad habit of students of drying flowers between the pages of their books.[32] De Bury's students dried these flowers as souvenirs and, of course, not with the intention of studying them. There are, however, indications that pressed and dried plants – loose herbarium specimens actually – were used as examples for the illustrations of the northern Italian herbal known as the 'Erbario Carrarese' (*c.* 1400).[33] The use of drying plants under pressure did not apparently become popular right away, as indicated by the Italian physician Pietro Andrea Mattioli (1501-1577) in his writings to his colleague Bartolomeo Maranta (1500-1571) in 1543. He informed Maranta that the plants he had used as examples for many of the illustrations in his *Discorsi* (1544), had become so shrunken and curled up from drying that he had to first soak them in cold water to restore their natural form.[34] These shrunken plants were obviously not herbarium specimens, but air-dried plants.

The lack of absorbent material between which plants could be pressed and dried must have formed a significant impediment for the development of herbaria as well. The pages of the books used by the bishop's students to dry their flowers would not have been of paper, but of parchment; that is not a suitable material for this purpose as it is not absorbent. Paper was invented in the West in the thirteenth century, but only became an inexpensive replacement for parchment in the late fourteenth century. Only after the invention of the printing press (around 1450) was paper produced in large quantities and did it become less costly. Nevertheless, even after paper became more widely available, it took a long time before the first herbaria appeared. This had everything to do with the way in which nature was studied in the second half of the fifteenth century. It was believed that the classical authors had already described most, if not all, of the plants God had created. As a consequence, the world of plants was only studied by means of the existing literature as herbalists themselves did not go out to examine plants in nature. Therefore, a research instrument such as an herbarium would not have been of much use to them. This did not change until the end of the fifteenth century when the complete works of Theophrastus (371-287 BCE) and Dioscorides (*c.* 40-90 CE) became available for the first time. Dioscorides's *De Materia Medica*, in particular, inspired scholars of that time to make excursions in search of the plants described in those works.[35] This would have been frequently unsuccessful, however, because the Mediterranean flora Dioscorides had observed, differs considerably from that in other regions of Europe. The search for the plants described by him led to a flow of publications in which herbalists recorded their observations. In 1542 the German physician Leonhart Fuchs (1501-1566) published his *Historia Stirpium*, followed in 1544 by Mattioli's *Discorsi*.[36]

It is no coincidence that during this period the idea was embraced to use dried and pressed plants, not only as examples for illustrations, but also as the carriers of information themselves. The earliest known example of this is found in a manuscript in the Biblioteca Queriniana in Brescia. In this manuscript, in order to clarify the text, two plants are found pasted on the pages, one of which is dated 1506.[37] The same idea must have been the motivation for the lawyer, historian, poet and biologist Pandolfo Collenucio (1444-1504) to send, in 1493, two pressed and dried plants to the classicist and poet Angiolo Poliziano (1454-1494). In this way, Collenucio wanted to show his correspondent which plants he thought the comedy writer Plautus had in mind when he wrote about 'Gnaphalium' and 'Nardus'. Poliziano responded positively and was convinced that the two dried plants were identical to the ones described in the text by Plautus. The scholars to whom Poliziano showed the letter were, however, not particularly enthusiastic about this form of scientific communication.[38] They preferred to transfer information through drawings and texts.

Nonetheless, later herbalists regularly included press-dried plants in their correspondence to each other as did, for example, Gesner and his French colleague Jacques Daléchamps (1513-1588).[39] In addition to sending each other single specimens in their letters, they also sent larger parcels containing more plants. The Italian herbalist Agostino Alpago from Belluno, had sent 130 plants to Mattioli. Mattioli returned them in 1554, along with his annotations. Pietro Antonio Michiel (1510-1576) was a Venetian nobleman, who had assisted in the creation of the Padua garden. Alpago, in turn, sent him plants he had collected in the lower valley floors around Feltre and Belluno.[40] This action led to the assumption that Alpago must have had an herbarium, even though it is not known with certainty how Alpago had dried his plants.[41]

It is tempting to believe that the number of pressed and dried plants that the scholars of that time were sending to each other increased and formed an herbarium almost as a matter of course. Apparently, this was not the case, because


Piper indicus.
Indiamsch pfeffer.
328.

7.
Harder Herbarium, 1576-1600.
Dim. 280 x 424 mm. Munich, BSB Cod. Icon. 3, fol. 328r. Piper indicus - Indian pepper - chili pepper (*Capsicum annuum* L.).

Mattioli writes to Aldrovandi (15 September 1553) that he had neglected to make a [herbarium?] collection because he was too busy making drawings of the plants he had observed. He recommended to those who followed him not to make the same mistake.[42] Mattioli's contemporaries such as Fuchs and Ghini were also mainly interested in illustrations of plants and perhaps never collected plants with the intention of creating an herbarium of their own. Mattioli, Ghini, and Fuchs still focused primarily on the identification of plants described by classical writers. Herbalists of the next generation started to focus on plant species and it was then that the time was right for the first herbaria to appear. When describing species of plants, it was necessary to compare many examples and a collection of herbaria would be useful in those efforts.

Not only because it was often impossible to retrieve the species described by Dioscorides, the stream of unknown plants that arrived in Europe through the great voyages of discovery almost certainly played a role in the development of this idea. From then on, the aim of the herbalists evolved from mere identification to making an inventory of every plant species that existed.[43] Now, circumstances were ripe for the first herbaria to appear. To describe the different species botanists/physicians found, it was essential to not only compare their morphological characters with many other specimens but to compare them as well with reliably identified specimens. An herbarium collection would then be an extremely useful tool for carrying out these tasks.

The 'inventor' of the herbarium

In most publications on the earliest herbaria, Luca Ghini is named as the inventor of the herbarium technique and the first person to designate Ghini as the one to hold this honour was the German botanist Ernst Meyer (1791-1858). Meyer based his attribution on a letter written by Maranta to Mattioli, from which he surmised that the plants Ghini delivered with his notes were pasted onto paper. Ghini would have sent these plants shortly after the publication of the Italian edition of Mattioli's commentaries on Dioscorides in 1548. Meyer argued that, when Ghini was sending plants he had pasted onto paper to others, Ghini must have been preserving plants in a similar way for his own purposes, some time before.[44]

Meyer further reasoned that the study of botany as a science was very limited in England at that time, and considered it unlikely that Falconer could have come up with the concept of the herbarium. In his opinion, Falconer must have met with Ghini during his travels in Italy and was introduced to herbaria through him. Eventually, as long as no one else had a better suggestion, he concluded that Ghini must have been the inventor of the herbarium.[45] Besides the herbaria of Falconer, Aldrovandi and Cesalpino, Meyer knew only of those made by Leonhart Rauwolff (1535-1596) and Caspar Bauhin (1560-1624). Would he have come to a different conclusion had he been acquainted with all other herbaria from the sixteenth century that we now know to exist, or been familiar with the lost herbarium of Turner? (ills. 4, 5 & 6)

There appears to be no evidence that Ghini kept an herbarium himself. Aldrovandi, who at the request of Mattioli looked through Ghini's effects after his death, did not find any herbarium specimen.[46] Yet, it is sometimes asserted that Ghini had a herbarium with 600 plants.[47] The source for this is in a letter written by Ghini to Aldrovandi (16 October 1553) in which he mentions that he had a collection of more than 600 dried herbs, more than half of which had been lost.[48] From this alone it cannot be concluded with certainty that this was a collection of herbarium specimens, since it could just as well have been a collection of simples like Giovanni Manardi (1462-1536) and Brasavola possessed.

As evidence that it was Ghini who invented the herbarium, or at least that he was the main promotor of its use, considerable emphasis is placed on the fact that many of his students made herbaria of their own. Did they really all adopt the herbarium technique from their teacher? Ghini was appointed in Bologna in 1528 to teach practical medicine. The first of Ghini's students who is said to have made an herbarium is Cibo who was in Bologna at the end of 1529. It is, however, much doubted now whether he was really the one who made it. If he really had studied with Ghini at that time, he could only have followed Ghini's lectures in practical medicine. It was in the academic year 1537/1538 that Ghini first began teaching pharmaceutical botany and during which students were taught the characteristics of medicinal plants.[49] Turner, who certainly studied in Bologna in 1540 / 1541 with Ghini, must have followed his materia medica lessons. Besides, it also quite possible that Falconer met Ghini in Bologna during the period he was staying in Ferrara.

In 1544, Ghini moved to Pisa, where he had established the first academic botanical garden the year before. Untill recently it was believed that around that time, Merini studied there with Ghini and collected plants in the Pisa garden for his herbarium. However, his herbarium is no longer attributed to him. About the same time, between 1545-1549, Andrea Cesalpino (1519-1603) was also a student of Ghini's in Pisa. However, Cesalpino seems to have started his first herbarium only in 1555, after he had succeeded Ghini as head of this garden in 1554 and had become Professor of Medicine and Botany in Pisa.

Aldrovandi had studied in Padua in the years 1548-1549.[50] Before he had met with Ghini for the first time, Aldrovandi had already received lessons in botany from Petrollini in 1550.[51] Both Petrollini and Aldrovandi started making an herbarium in the mid-sixteenth century. Around the same period

8.
The Girault herbarium, 1558. Paris MNHN. Opened on a random page, it shows how the plants are attached with thread.

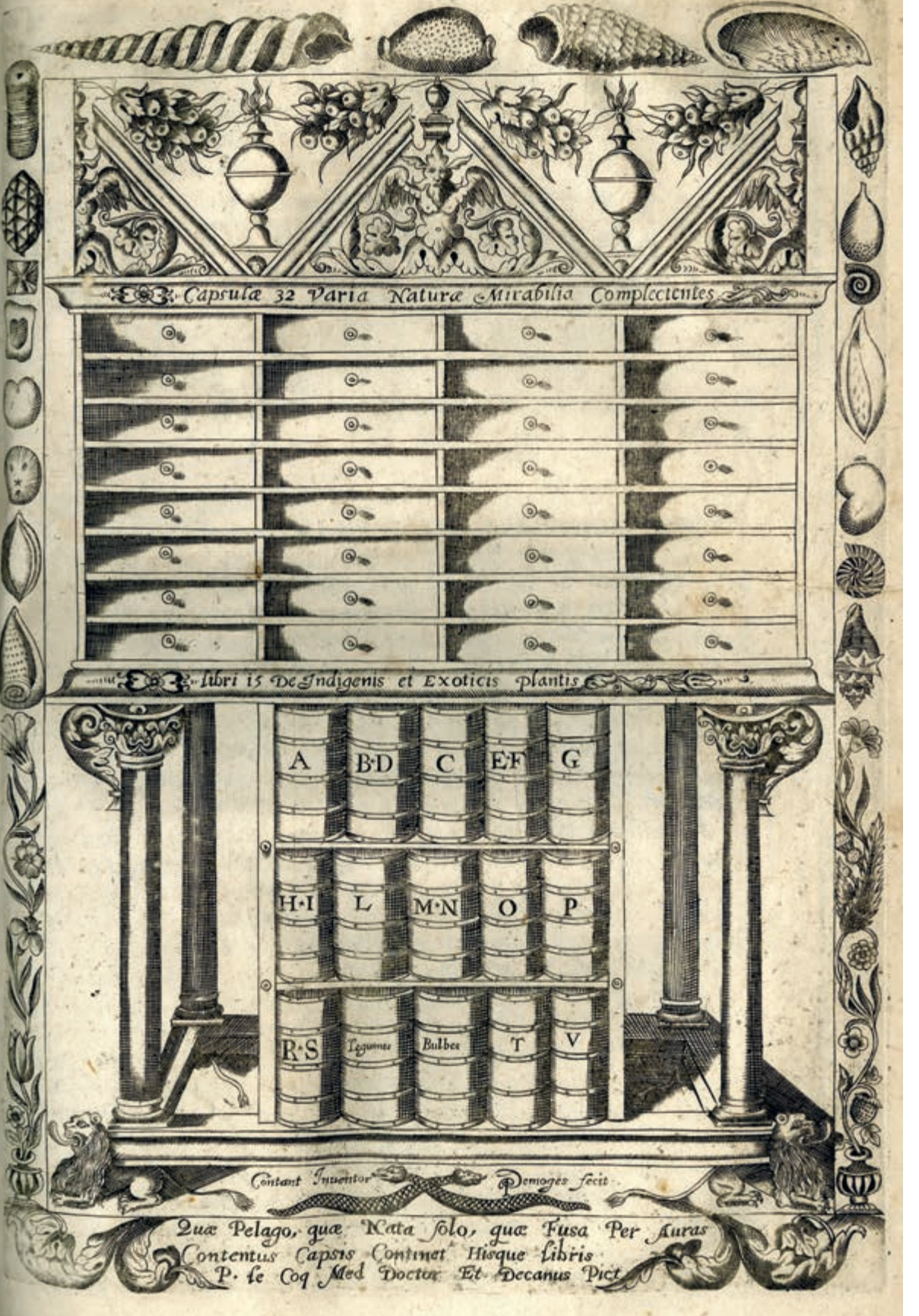
9. ▷
François Clouet, portrait of Pierre Quthe (1510-1572), 1562. Paris, ML. Inscription lower left: FR. IANETTI. OPUS/PE. QUTTIO. AMICO. SINGULARI/AETATIS SUE XLIII/ 1562 (work by Fr. Janet, to Pierre Qute, his good friend at the age of 43, 1562). The Parisian pharmacist Pierre Quthe is pictured with his herbarium open in front of him.

Aldrovandi was in Padua, the pharmacist Francesco Calzolari (1522-1609) studied there under Luigi Anguillara (*c.*1512-1570), the first prefect of the Padua garden. The two became friends, and it was Aldrovandi who brought Calzolari in touch with Ghini. They probably attended Ghini's lessons in Pisa in the academic year 1551/1552.

The earliest evidence that Ghini was familiar with the herbarium technique dates from 1551. That year he wrote to Mattioli, that he had enclosed specimens of two varieties of lesser horminium (*Salvia sclarea* L.) that were glued to paper.[52] That same year he made a book with dried simples for Calzolari, who responded with a letter thanking Ghini for this gift that was more dear to him than anything else.[53] Petrollini, Aldrovandi and Ghini, all three belonged to a circle of naturalists working in and around Bologna, corresponding with each other, and making excursions to collect plants that they later kept in their herbaria. To this group also belonged Calzolari and his teacher, Anguillara of Padua, and Alpago from Belluno. Was one of them the inventor of the herbarium? Was it Aldrovandi, who seems to have started his first herbarium not long before his first meeting with Ghini? Maybe Aldrovandi had learned the technique from Petrollini, his first tutor in botany, and should be considered as the first to have made an herbarium? This is all the more possible since it has been demonstrated that it was Petrollini who supplied the plants for 'erbario B' in Rome.[54] Or was it Ghini, after all, as is usually suggested? If not, then Ghini played a major role in spreading the technique through his later students.[55]

The limited knowledge of botany in England cannot be considered sufficient reason to assume Falconer and/or Turner incapable of coming up with the idea of an herbarium.[56] When Turner was a student in Cambridge from 1526 to




Capsulæ 32 Varia Naturæ Mirabilia Complectentes
Libri 15 De Indigenis et Exoticis plantis
A
B·D
C
E·F
G
H·I
L
M·N
O
P
R·S
Legumes
Bulbos
T
V
Contant Inventor Demoges fecit
Quæ Pelago, quæ Nata solo, quæ Fusa Per Auras
Contentus Capsis Continet Hisque Libris
P. le Coq Med Doctor Et Decanus Pict

10.
Wood engraving of the cabinet of the pharmacist Paul Contant in Poitiers. In: *Le jardin et cabinet poétique de Paul Contant, apoticaire de Poictiers*, 1609. The books below must represent his herbarium.

1533, none of the doctors were able to teach him a single Latin, Greek or even an English name of a plant.[57] However, in the preface of the second volume (1551) he wrote: '[I]n the past and now, there were scholars in England who, despite the fact that they had not published anything, had as much and even more knowledge than several Italians and Germans who had published herbals and books of simples.'[58] Among them, he must have also included Falconer, who Amatus had described as someone who had travelled a great deal for his studies and could compete with the most knowledgeable herbalists.[59]

The knowledge of plants among the physicians of that time in Germany and France would not appear to have been very extensive as well. There is an anecdote recorded by Erasmus (1466-1536) in 1516 about a group of French scholars which illustrates this. At a dinner, a doctor took an herb out of the salad that had been served to the group and challenged the medical professors from Paris to identify it. No one could do so and the conclusion was that it must be a rare foreign plant. Whereupon the kitchen maid was called in who immediately recognized it as common parsley (*Petroselinum* sp.).[60] According to the Flemish herbalist Rembert Dodoens (1517-1585), this lack of knowledge stemmed from the fact that medieval physicians considered it beneath their dignity to study the '*materia medica*' by researching the plants themselves.[61] In the introduction to his *New Kreüterbuch* (1543), Fuchs had written that over the years the knowledge of herbs among most medical scholars had declined to such an extent that few could to be found who knew ten herbs properly and thoroughly. The physicians left this to old women and uneducated apothecaries, as if it were scandalous and dishonourable to burden themselves with such unnecessary inconvenience as the study of herbs.[62]

Not everyone shared Meyer's conclusion. The fact that Falconer sent many English (!) plants to Amatus in Italy was irrefutable evidence for the Hungarian botanist Carl Flatt von Alföld to determine that it was not Ghini who was the inventor of the herbarium but, rather, that the idea must have travelled from England to Italy.[63] It is at the very least curious that, if Turner had learnt the technique from Ghini, he mentions only Falconer's herbarium in his herbal and not his teacher's. It cannot therefore be discounted that Falconer and/or Turner were already well acquainted with the method of making herbaria before they found themselves in Italy during their travels.

To increase his botanical knowledge, Amatus studied the plants in the collection of simples belonging to his friend Brasavola, visited the gardens of patricians and undertook botanical excursions in the vicinity of Ferrara. During these excursions he was accompanied by excellent specialists, in order to benefit from their teachings. As such, Amatus named Falconer, Gaspar de Gabrieli, founder of a private botanical garden in Padua and Gabriele Falloppio (1523-1562), Professor of Anatomy in Pisa. That is why it has been suggested that it was Falconer who introduced the technique in Italy via Gabrieli and Falloppio (1523-1562). Actual proof for this hypothesis cannot be found.[64] It is probably impossible to determine with certainty the inventor and/or creator of the first herbarium.

Meyer searched for one person as inventor of the herbarium, but the concept itself is actually so straightforward that it is quite possible that it was invented around the same time by several people in different places in Europe.[65] This notion is not so far-fetched. The Norwegian Bishop Gjeble Pederssøn (1490-1556/1557) not only wanted to learn which plants he could find in Norway, but also those that grew in other countries. He always carried an herbal with him – in which he, adjacent to the corresponding illustrations, had placed a dried plant. He may possibly have begun drying plants in his herbal as early as 1537.[66] It is not known whether he had glued the plants in his book, just like Falconer, or that he had placed them loose between the pages of his herbal.

THE DISSEMINATION OF THE USE OF HERBARIA

Italy

Whoever the creator of the very first herbarium may have been and which nationality he had, its use was quickly embraced in Italy. Apart from the Italian herbaria mentioned above, which could be the oldest extant, there are other sixteenth-century herbaria that have existed, or still exist, that have their origin in Italy.

The lost herbarium of Andrés Laguna and the herbaria of Diego Hurtado de Mendoza in Madrid

In the introduction to his commentaries on the first book of Dioscorides (1555), the Spanish physician Andrés Laguna (1499-1559) writes: 'To aid the memory, it is very useful to preserve the herbs themselves glued to cardboard, as I have preserved an infinite number of exquisite and rare ones. In this way they retain their shape and colour for centuries as if they had been preserved in balsam.' From this we can only conclude that Laguna's collection was what we would now call an herbarium. Unfortunately, he does not inform us how he had organized his plants; as separate specimens, or bound together in a book?[67]

After his studies in Salamanca, Laguna went to Paris in 1530 to study medicine and botany. Between 1536 and 1539, he attended the University of Alcalá, earned his Doctor of Medicine degree in Toledo, practiced as a physician in Alcalá and Toledo, and eventually joined the court of Charles V in Toledo as a surgeon. In 1540, he went on extensive study trips to England, Germany, and The Netherlands, before taking up the position of physician in Ghent (where Charles V frequent-

ly resided) and Metz. Because of the growing sentiments against Charles V in Metz, Laguna left for Italy in 1545 where he spent the following years alternately in Padua, Bologna, and Rome.[68]

In November 1545, Laguna obtained a medical doctorate in Bologna.[69] Here, or in Padua, he probably became acquainted with the herbarium technique. In his commentaries, there is also a reference to his collecting activities in Rome. On page 342 he writes: 'There is an abundance of it near [the basilisk] San Giovanni in Lateran in Rome, where I collected a plant that I have pasted with others.'[70] Laguna also collected plants around Trent: 'There is a great abundance of Ligusticum growing naturally in the mountains of Genoa, and just as much in the hills around Trent, where I showed it last year to Diego de Monte.'[71] If Laguna indeed became familiar with herbaria in Italy, then his herbarium likely dates from between 1545 to 1559, the year of his death.

In Rome, Laguna served as the personal physician to Pope Paul III and Pope Julius III.[72] In Venice, he was hosted at the home of Diego Hurtado de Mendoza (*c.* 1503-1575). Hurtado de Mendoza had been appointed ambassador in Venice by Charles V in July 1539, a position he occupied until 1546. In his capacity as imperial observer during the last two years of his position as envoy in Venice, Hurtado de Mendoza spent long periods in the city where the Council of Trent was meeting. In 1547, he was appointed ambassador to Rome, where he remained for the next five years, before returning to Spain in 1554.[73]

Hurtado de Mendoza had an important library that, after his death, came into the hands of Philip II. Among the books was a four-volume herbarium, each representing an individual collection. The plants in these volumes almost exclusively represented species treated by Dioscorides in his *De materia medica*.[74] In none of the volumes are there references as to who might have created them. It is, however, not very likely that the ambassador himself had collected and dried plants.[75] It is assumed that the production of these volumes, or at least a substantial portion of them, took place in Spain by Spanish subjects who had moved in the orbit of Hurtado de Mendoza during his ambassadorship in Italy.[76] Since Laguna also belonged to this group, it is therefore not unlikely that he was involved in the acquisition or production of this herbarium. That would date this herbarium between 1545, the year Laguna came to Italy, and 1554, when Hurtado de Mendoza returned to Spain.

The herbarium of Ulisse Aldrovandi in Bologna

The most extensive of any of the herbaria that have been preserved from the sixteenth century is that of Ulisse Aldrovandi (ill. 3). In 1796, his herbarium was seized by the French revolutionary army and sent to Paris, but it was returned in 1815.[77] It consists of fifteen bound volumes compiled between 1551 and 1586. These volumes actually form eleven different herbaria.[78] The plants in the first volumes are arranged alphabetically.[79]

11.
The 'pharmacists' herbarium of Petrus Cadé, 1566. Leiden NBC. 'Lilium covallium'/ 'Mey bloomkens' (lily of the valley, *Convallaria majalis* L.)

Aldrovandi first studied law. When he was close to graduating, he abandoned law and went to Padua to study logic and philosophy as well as medicine and mathematics. Crucial for his career was his meeting with Guillaume Rondelet (1506-1566) in Rome. Through Rondelet, Aldrovandi became increasingly interested in natural history. In 1549, Aldrovandi came under suspicion of heresy and was sent to Rome for questioning. He was imprisoned there for about eight months, from September 1549-April 1550. When he was set free, he studied philosophy and medicine. Back in Bologna, Aldrovandi decided to deepen his knowledge of botany, zoology and mineralogy, and to complete his medical studies.[80] In Bologna, in 1551, Aldrovandi met Ghini for the first time. In June of that year, before that meeting, Aldrovandi made his first trip collecting plants. Those he gathered during that trip are glued onto paper in the two first volumes of his herbarium. In 1552 and 1553, he again made such excursions and the plants collected then are assembled respectively in the third and fourth volume, and in volumes five through seven. In 1554, Aldrovandi joined an excursion to Monte Baldo (near Lake Garda) together with Anguillara, Andrea Alpago, Calzolari and others.[81] This Andrea Alpago was probably Andrea's grand-nephew Agostino, since Andrea had died in 1522. Calzolari who owned a house at the foot of Monte Baldo organized many such excursions.[82]

The herbaria of Andrea Cesalpino

Cesalpino made at least two herbaria. Only one has survived and can be found in Florence. In all likelihood he started the herbarium in Pisa in 1555.[83] He was the first to classify plants according to their morphological characters and not according to their medicinal properties or some random or superficial function, as had been the norm until then.[84] The herbarium is made up primarily of plants Cesalpino gathered personally in Tuscany and is organized according to his own system.[85] His other herbarium is now lost.

The En Tibi herbarium in Leiden

This herbarium takes its name from the inscription on the front board: '*En Tibi Perpetuis Ridentem Floribus Hortum*' (literally: 'Here for you a smiling garden of everlasting flowers'). The 'smiling garden' is likely a reference to the Garden of Eden, where plants always bore both flowers and fruits, making it possible to study all parts of a plant at the same time in each season, just as this is possible with the plants preserved in an herbarium.[86]

On the basis of the handwriting and watermark of the paper used, and since there were references in this herbarium to Fuchs's *Historia Stirpium* of 1542, but not to Mattioli's


9
Lilium convallium
May bloomens
Bifolium Cornblad

Discorsi from 1544, it was generally assumed until recently that it was compiled between 1542 and 1544.[87] It is now likely, however, that it was not made earlier than 1558 and certainly not prior to 1550. The plants may have been collected and dried by Petrollini, who is also believed to have collected the plants in 'erbario B' in Rome.[88] The inscription and the luxurious production are clear indications that this herbarium was made on commission. For whom this herbarium was intended has not yet been established. In addition to plants found in Italy, the En Tibi herbarium includes a number of specimens originating from the New World such as the tomato (*Solanum lycopersicum* L.) (ill. 1, p. 73).[89]

The Erbario Ducale Estense in Modena

This herbarium differs from other Italian herbaria because vernacular Italian names are added.[90] It might have been composed as a kind of catalogue by a gardener at the ducal palace in Ferrara. It dates from the end of the sixteenth century, but a small part is older and possibly dates from before 1560.[91]

Spain

From Italy, the herbarium technique may have been introduced to Spain by Laguna. After the death of Pope Julius III in 1555, Laguna moved to Antwerp to concentrate on his medical and humanist studies. In 1557, he returned to Spain, where he died two years later.[92]

The lost herbarium of Francisco Hernández

The physician Francisco Hernández (1517-1578) was appointed by Philip II to lead a scientific expedition to Mexico. He returned to Spain in 1577 bringing with him a large collection of roots and seeds, an herbarium and 38 volumes of notes and illustrations.[93] These were stored in the royal library at the Escorial, where in the words of the Dutch physician Johannes van Heeck (1579-1630) the 'Spanish king kept all the Indian plants and that were fixed with glue'.[94] When the French botanist Joseph Pitton de Tournefort (1656-1708) visited this library in 1688 to study the royal herbarium, he was shown a number of herbarium volumes that were supposedly Hernández's. However, he found they contained only European plants – that were in very bad condition – and not a single specimen from the New World. He concluded that this specific herbarium could not have been the one made by Hernández.[95] In all likelihood Hernandez's work was destroyed in 1671 during the great fire of that year.[96]

Germany and Switzerland

The technique to create an herbarium is said to have been brought from Italy to Montpellier by Rondelet. As personal physician, Rondelet had served Cardinal François de Tournon (1489-1562), who travelled through France, Flanders and Italy in the years 1549-1550. During this journey he visited several Italian universities and met with many of his correspondents, not only Ghini, but also Aldrovandi and Brasavola.[97]

12.
The 'pharmacists' herbarium of Petrus Cadé, 1566. Leiden NBC. 'Vremde Criecken van over zee' or balloon vine (*Cardiospermum halicacabum* L.). This plant is originally from Central America, but was planted very early in the gardens of Europe.

Several of Rondelet's foreign students, such as the Germans Caspar Ratzenberger (1533-1603) and Rauwolff, the Swiss Felix Platter (1536-1614) and Johann Bauhin, had made herbaria. They all studied in Montpellier after 1551, the year in which Rondelet returned from his journey to Italy. Curiously though, so far, no French student of Rondelet is known to have left behind an herbarium.

The Swiss Felix Platter studied in Montpellier between 1552 and 1557. In the diary that he kept during his studies, he mentions that he arranged his collected plants on sheets of paper.[98] But did Rauwolff and Ratzenberger also come in contact with herbaria for the first time in Montpellier? Before Ratzenberger travelled to Italy and France to complete his studies, he first studied in Wittenberg (1554-1556) and later in Jena (1557-1558).[99] In Orange, France, he obtained a degree in medicine, whereupon he returned to Germany.[100] In Volume 3 of his herbarium in Kassel, Ratzenberger wrote down 1556 as the year that he collected the plants while still studying in Wittenberg and years before he went to Montpellier.[101]

The plants collected in Germany for Ratzenberger's herbarium in Kassel are pasted directly onto the paper. In contrast, the plants he collected later in Italy and France were first pasted onto paper and then delicately cut out before he inserted them in his herbarium.[102] Only after he had settled in Naumberg as the town's physician in the early 1560's, did Ratzenberger begin to organize his plants into this herbarium.[103] This might explain the difference in the way the early German specimens and the later Italian and French ones were mounted. Ratzenberger, it seems, had simply dried the plants he had gathered in Germany between sheets of paper and had not mounted them. He must have learned how to preserve plants by this method before he arrived in Montpellier.

If not from Rondelet, then from whom had Ratzenberger learned this technique? Both Ratzenberger and Rauwolff had studied in Wittenberg. Rauwolff enrolled there in 1556 and Ratzenberger studied there between 1554 and 1556. Coincidentally, during his second exile and before he went to Cologne, Turner was also in Wittenberg between 1553 and 1557.[104] It is certainly not impossible that they met and through Turner, Ratzenberger and Rauwolff might have become familiar with an herbarium in Wittenberg.

Like Platter, also the Swiss Johann Bauhin may have come into contact with herbaria for the first time when he arrived


Peregrinus
Italica Cacalias

in Montpellier to attend Rondelet's classes, in 1561, but this has not been established. Bauhin had studied in Tübingen and Basel. Shortly before he went to Montpellier, he made a long 'collecting' trip with Gesner, who at that time almost certainly knew how to make an herbarium. Later, Johann Bauhin would donate all his duplicate specimens to Gesner.[105]

Felix Platter's herbarium in Bern

The Platter herbarium that had been started in Montpellier, grew eventually to be eighteen volumes of dried plants and illustrations. Only eight of these have been preserved. The herbarium not only contains plants of European origin, but also those native to Africa [Egypt], the Orient, the Indies and the Americas. Some of the plants were sent to him by Clusius and Joachim Camerarius. The herbarium became part of his natural history cabinet, a well-known curiosity at that time. There are two dates in the Platter herbarium: 1554 and 1593.

One of the visitors to Platter's museum was the writer Michel de Montaigne (1533-1592), who passed through while journeying through Switzerland to Italy in 1580.[106] In his travel diary, he writes that Platter was working on an herbarium of medicinal plants. De Montaigne was also shown a number of plants that he had pasted in his herbarium more than twenty years earlier.[107]

Leonhart Rauwolff's herbaria in Leiden

Rauwolff left us a four-volume herbarium (ills. 4, 5 & 6). After his studies in Wittenberg, he went to France where he studied with Rondelet in Montpellier (1560-1562). He completed his studies in Valence, France, and in Italy. The plants that he collected during his stay in Montpellier are arranged in the first two volumes of his herbarium. The third volume contains the plants he gathered during his return trip to Germany, in 1563. On the way, he stopped in Tübingen where he met Fuchs, who studied the herbarium and took the opportunity to add annotations to a number of plants. He wanted some to be depicted in a new edition of his *De historia stirpium commentarii* that he was working on. It was never published, but the manuscript, including the original drawings, can be found in the Österreichische Nationalbibliothek in Vienna. The resemblance of a number of the drawings to the corresponding dried plants in Rauwolff's herbarium is so strong that it is clear that Rauwolff's plants had served as models. A good example of this is the edelweiss (*Leontopodium alpinum* Cass.) (ill. 5, p. 79).[108] In general, the plants in the Rauwolff herbaria are well preserved. That is partially due to the fact that Rauwolff raised the edges of the pages with strips of paper, thus protecting the plants when the book is closed. This approach also kept out insects that might have attacked the specimens.

Since his youth, Rauwolff had aspired to visit faraway countries. In particular, he wanted to travel to the Near East to study the plants and herbs there in their original habitat in order to formulate better descriptions of these plants, especially the rarest and most exotic of them. In addition, he wished to encourage apothecaries to obtain those essential plants and herbs that had been lacking in their shops.[109] His wish was realized by his brother-in-law, Melchior Manlich, an affluent merchant from Augsburg. The Manlich firm traded in spices and medicinal herbs from the eastern Mediterranean area.

In 1573, Rauwolff was sent to Tripoli as physician to the representatives of the Manlich company, but also in the hope that his study of the local flora would lead to the discovery of a new, profitable import product.[110] The plants he gathered during this journey may be found in the fourth and largest volume of his herbarium. This is the earliest still extant herbarium containing plants gathered outside of Europe and the plants in this volume have been recently (re-)identified.[111]

The title page is decorated at the top and bottom with illustrations of Jesus in Gethsemane and the entry into Jerusalem (ill. 6). On the right, we see a physician holding a plant in his hand, on the left a gardener with a spade. This gardener must be a reference to Adam directed by God to take care of the Garden of Eden (Genesis 2: 15). It is possible that both figures portray Rauwolff himself.

The two herbaria of Caspar Ratzenberger

Ratzenberger's herbarium in Kassel is made up of three volumes. The first contains trees and shrubs, the second bulbous plants and the third umbelliferous plants. Ratzenberger classified his plants, some according to their physical appearance and others by their medicinal use. In the dedication of this herbarium he reveals the reason why: 'And from my *Herbario vivo* young physicians and medical students can learn in eight days as many indigenous and foreign herbs and simplicia, as I could not in ten or twelve years.'[112]

In 1598 Ratzenberger completed a second herbarium consisting of four volumes. These volumes are now kept in Gotha, but were still in his possession in 1602. After the death of Ratzenberger it seems to have come in the hands of Duke Ernst I, of Saxe-Gotha (1601-1675). The title on the first page of each volume of the Gotha herbarium is painted in bright colours and surrounded by various, mostly recognisable, plants (ill. 13).[113]

Johann and Caspar Bauhin

After Johann died, his herbarium was inherited by his grandson Daniel Loris. To enable the publication of Johann Bauhin's *Historia plantarum universalis* (1650-1651), Loris sold the manuscript and herbarium to the publisher and printer Pyrame de Candolle in Yverdon. It is not known what became of his herbarium after that.

Undoubtedly, Johann passed his knowledge of the herbarium technique to Caspar. Like his older brother, Caspar first studied in Basel. From 1575 on, he studied medicine there together with Platter who had started to make his own herbarium in Montpellier in 1552. In 1577 Caspar went to Padua to study anatomy and travelled through Italy for two years.

13.
Title page of the first volume of the Ratzenberger *Herbarius vivus: Lebendig Kreuterbuch, aller Gewechs, Beume [...]*. 1598. Gotha, UFEG.



The practice of making herbaria had been known there for some time (see Gagelmann's herbarium). In Padua he met the Dutch physician Bernardus Paludanus (1550-1633), who had made a plant-collecting trip to Syria.[114] During his stay in Italy he also visited Aldrovandi in Bologna in 1578 and Ferrante Imperato (1525-1621) in Naples. In 1579 he went to Montpellier, where he remained for a short period of time. The following year he entered the University of Tübingen. The plants in Caspar's herbarium were gathered between 1577, when he went to Padua, and 1624.[115] His herbarium formed the basis for the first local Flora in the world, that of the Basel region. In contrast to that of his brother, Caspar's herbarium has been preserved and is now part of the herbarium of the University of Basel. It includes many of the New World plants that had just been brought to Europe, including the first herbarium specimen of the potato (*Solanum tuberosum* L.). This herbarium is the only one in which the specimens are lying loose in folded sheets.

Joachim Gagelmann's herbarium in Wolfenbüttel
Joachim Gagelmann (d. 1595) was the personal physician of Duke Julius of Braunschweig-Lüneberg, Prince of Wolfenbüttel (1528-1589). He had begun his herbarium in Padua in the summer of 1571 and in 1575 he bestowed it to the duke.

Conrad Gesner and Joachim Camerarius
Gesner had received hundreds of dried plants from his colleagues and friends, including many specimens that were fixed on paper.[116] After Gesner's death, his botanical legacy came into the possession of his student Caspar Wolf (1532-1601) who, with the consent of Gesner's heirs, sold it to Joachim Camerarius (1534-1598).[117]

Camerarius had studied medicine at Bologna and after receiving his doctorate in 1562, became a physician in his hometown of Nuremberg. There he maintained a garden with rare plants. He was acquainted with Aldrovandi, Falloppio and Cesalpino. The English physician Thomas Penny (1532-1589) had frequently supplied Camerarius and Gesner with plants for their herbaria and gardens.[118] Camerarius' herbarium, containing the duplicates of Johann Bauhin and specimens from Gesner, were formerly held in the botanical institute of the University of Erlangen. They are now considered missing.[119]

The herbaria of Hieronymus and Johannes Harder
Where and from whom the German teacher and lover of simples Hieronymus Harder (1523-1607) had learned to make herbaria is unclear, but he became the most prolific maker of herbaria (ill. 7). In the foreword to one of them, now in Rome, he writes that he knew about the existence of other German and foreign herbaria. He believed his herbaria to be of better quality because, instead of fastening the plants by means of strips of paper, he pasted them in their entirety onto the sheets.[120] In his herbarium dating from 1599, Harder wrote that he had made several herbaria in the past 40 years. From this we can deduce that he started making them around 1560. According to Dobras, Harder may have already begun his first herbarium as early as 1554.[121]

The herbarium that Harder finished in 1594 is now preserved in Ulm. Its title reads: 'Herbal, in which 746 'living' herbs are glued. Just like the Almighty God created them and let them grow on earth, as is impossible for any painter (how-

ever skilful he may be) to bring to light in such a lifelike way. Most useful in the identification of herbs in printed herbals.'[122] Harder, who was probably born in Meersburg on Lake Constance, spent much of his youth in Bregenz. Like his father, he intended to become a teacher and sat for the teaching exam in Ulm in 1560, earning the title of 'Latin schoolmaster'. On his appointment in Geislingen in 1561, it was impressed upon him to serve the church by teaching catechism and the singing of psalms and not to waste any more



14.
The museum of the pharmacist Francesco Calceolari in Verona where some of the books in the back may represent herbaria. In: *Musaeum Francisci Calceolari jun Veronensis*, 1622. Amsterdam, UB OTM OM 63-71.

time on herbs.[123] Apparently, it was thought that he spent too much time collecting specimens. Harder seems to have followed this advice obediently and stopped working on his first herbarium, the so-called 'Anfangsherbar' from 1562. Nine years later, after he had been appointed schoolmaster in Überkingen northwest of Ulm, he finished his second herbarium, sometime between 1573 and 1575. During his stay in Überkingen he continued making several other herbaria. In 1578 he returned to Ulm where he became 'Preceptor' in the Latin school.[124] In the 1590s, he started to make herbaria again. From 1574 to 1594, he made the largest herbarium that he would still have had in his possession in 1600.[125] In an herbarium dated 1595, Harder wrote that during the last 30 years he had made 12 herbaria, all of which have been preserved.[126]

Harder did not organize the plants in his herbaria according to any consistent system. They are loosely grouped according to season. The first plants in his herbaria are always spring flowers such as the snowdrop (*Leucojum vernum* L.) and the pasqueflower (*Pulsatilla vulgaris* Mill.). Since Harder sometimes worked on an herbarium for many years, this seasonal arrangement can be found several times over.[127] However, he did recognize several groups of plants, such as the cabbage, carrot, pea and dead-nettle families. Harder did not dry bulbs or fleshy fruits, but, rather, replaced them with watercolour illustrations. Sometimes the plant's habitat was illustrated to indicate, for example, that a plant grew on walls.[128]

Harder passed his knowledge to his son Johannes Harder (1564-1606) thanks to whom three herbaria have survived. One is now in Wolfenbüttel, another in Vienna. The third is kept in Virginia and is entitled *Historia Stirpium, collecta per Doctore[m] Ioane[m] Harderem Medicu[m] Geislingensum*. Just like his father, Johannes replaced segments that were difficult to dry with watercolours.[129]

The herbarium of Jakob Han in Überlingen

Of the apothecary Johan Jakob Han (1565?-1616?) only one herbarium dated 1594 has come down to us.[130] Han too would have learned the herbarium technique from Harder, probably when he met Harder and his son-in-law, Johann Brehe, in Ulm.[131] In the foreword of his herbarium he wrote, however, that he had learned the method from Brehe.[132]

At the Latin school, Han had been an excellent pupil, but he did not mature well. He was a ne'er-do-well, a drinker, a vagrant and a fighter who was ultimately banished from Überlingen. He worked in pharmacies in large cities such as Augsburg, Heidelberg, Cologne, Nuremburg, Strasbourg and Ulm, but could be found more often in the tavern than in his pharmacy. In Ulm he had met Harder and Brehe, an apothecary who also came from Überlingen. The three of them spent an entire summer together, gathering plants. After drifting for a time, he returned to Überlingen to work in his father's pharmacy. But he remained a recalcitrant figure who was constantly in trouble. Only in 1587 did the people of Überlingen come to see another side of him. When the plague broke out in the city and people were dying in great numbers, anyone who was able to leave the city did so, yet Han stayed behind to care for the plague sufferers. It was during that time that he met his wife, Anna Römer, who also cared for the sick. They got married when the plague was over and together they would search for plants. Han dried them and organized them in his herbarium. His wife added small landscapes in watercolour from the regions where the plants had come.[133]

Georg Forster's herbarium in Nuremberg

The German physician and composer Georg Forster (*c.* 1510-1568) made an herbarium that he left to the Nuremberg city physician Georg Palma (1543-1591). Unfortunately, it is in such a poor condition that it cannot be consulted. Where Foster learned to make an herbarium is unknown. In 1531, he entered the University of Ingolstadt, moving next to Wittenberg. After finishing his studies in 1539, he worked as a physician in Amsberg and later in Würzburg. In 1545, he moved to Tübingen for his doctoral degree, where he became friends with Fuchs to whom he later sent plants for the new edition of the herbal that Fuchs was planning.[134]

France

The only known surviving French herbarium is now in Paris and was made by the surgeon Jehan Girault (1538?-1608), a student of Daléchamps's at the medical school of Lyon (ill. 8).[135]

He began making this herbarium in 1558, not for his personal use but for the surgery students of Jehan Canappe, lecturer of surgery in Lyon.[136] This specimen is the only remaining sixteenth-century herbarium in which the plants are not only pasted, but also sewn onto the page.[137] We know of the existence of another French herbarium, because it can be seen in a 1562 portrait of Pierre Quthe (1519-1590), who was painted by François Clouet with his opened herbarium displayed next to him. Quthe was a well-known Parisian apothecary with a reputation as an herbalist (ill. 9).[138]

In *Le Jardin et Cabinet poétique de Paul Contant, apoticaire de Poictiers* (1609), we find a wood engraving depicting a cabinet with 32 drawers containing natural history specimens and fifteen fat books that must represent an herbarium (ill.10). Paul Contant (1562-1629) was an apothecary in Poitier. The plants in the books appear to be organized alphabetically with the exception of two volumes that, according to the titles on the bindings, contain legumes and bulbs. This herbarium would have been started in the late sixteenth century and contained approximately 3,000 plants.[139]

The Low Countries

The only still extant herbarium made in the Low Countries in the sixteenth century is that of Petrus Cadé, dated 1566, the year of the Iconoclastic Fury. Who Cadé was is unknown, perhaps an apothecary or monk who was interested in medicinal herbs. This small volume contains primarily local plants, but

includes a few Mediterranean species. There are specimens from (herb) gardens such as the balloon vine (*Cardiospermum halicacabum* L.) (ill. 12).

The names of the plants are based on Dodoens's *Cruijdeboeck* from 1554.[140] This herbarium was discovered in a collection of manuscripts belonging to C.K. Ogden (1889-1957) that, after his death, was purchased by the Los Angeles Biomedical Library. A segment of the collection came from John Selden (1584-1654), an English scholar with a famous library.[141] It is assumed that Cadé's herbarium travelled to England in the seventeenth century and disappeared. More than three centuries later, in 1979, it was returned to The Netherlands when it was donated by the University of California to the University of Utrecht. In contrast to many other six-



15.
The museum of the pharmacist Ferrante Imperato in Naples. In: *Dell'Historia Naturale*, 1599. All the books that we see on the left may have contained dried plants. The Hague, KB KW 758 A 15.0

Scheme pp. 104-107 ▶
Chronological list of herbaria known to have been made in the sixteenth century.

p. 108 ▶▶
Apuleius Platonicus, Herbarium and other texts. France, tenth century. Dim. 235 x 170 (190 x 140) mm. The Hague MMW 10 D 7, fol. 6v, *herba Pastinaca sylvatica* (parsnip): parsnip, boiled in water and ground: given to a woman makes her pure.

teenth-century herbaria that are beautifully bound, this work is plain, which could indicate that is was a utilitarian object in regular use as a reference book. As such, it would often have travelled with its owner (ill. 11).

No doubt Cadé's work was not the only herbarium made in the Low Countries at that time. From the sales catalogue of his library that was auctioned off in 1638, we know that the Leiden professor Pieter Pauw (1564-1617) had one as well. It was described as a book containing numerous dried plants with their names written next to them.[142] After he had studied medicine in Leiden for three years (1581-1584), Pauw went abroad to continue his studies. One of the places he visited was Padua, where he would have come into contact with the method to create an herbarium. In 1589, he returned to Leiden and was later appointed to supervise the Leiden Hortus. It is unknown where his herbarium ended up.

A number of anonymous sixteenth century herbaria have not been discussed here, but are included in the overview.[143]

Highly prized possessions

Perhaps surprisingly, many of the surviving sixteenth-century herbaria were dedicated to members of the nobility or high clerical standing. The fact that these herbaria were part of important collections would, at the same time, have almost guaranteed their survival. We may assume that such dedications by the makers were intended primarily to receive some kind of support, most likely financially. These herbaria were either incorporated into libraries or became part of 'Wunderkammern' (ill. 14). These were collections of various delights, both old and new: art objects, rarities, antiquities, but also specimens of natural history. They came into existence at around the same time that the first herbaria appeared. These collections were not necessarily brought together for scientific study only, but for entertainment purposes as well.

Harder, in particular, dedicated many of his herbaria to prominent individuals. The reason for this may be that he never received a permanent appointment in Überkingen and might have suffered from a chronic lack of funds. In the herbarium now in Vienna, which he finished in 1599, he mentions for whom he had made herbaria.[144] Among the recipients were the Elector Palatine of the Rhine Frederick IV (1574-1610); the margrave of Baden-Durlach Ernst Frederik (1560-1604); and the Bishop of Augsburg, 'der von Kneringen', Johann Egolf von Knöringen (1537-1575).[145] He also made one for a certain doctor Joan Kern from Innsbruck, and two for Albrecht V (1528-1579), the Duke of Bavaria.[146]

The first herbarium Harder bestowed to Albrecht V was one he had finished in 1562.[147] The second had been made between 1574 and 1576. Harder likely presented them when the Duke was in the spa town Überkingen for a treatment. It is known that he was there in 1573, 1576, 1578 and 1579.[148] Harder's herbaria were placed in the court library in Munich set up by Albrecht V in 1561. The first herbarium presented by Harder has disappeared from this library and is now privately owned. The second had been missing since 1632 and was almost certainly stolen during the Thirty Years War (1618-1648).[149] It is now kept in the Deutsche Museum in Munich.

Another Harder herbarium that was seized as booty during the Thirty Years War was the one he had dedicated to the Elector Palatine of the Rhine, Frederick IV, in Heidelberg. After the fall of Heidelberg in 1622 it found its way to Rome; later Maximilian I of Bavaria had the complete Bibliotheca Palatina transferred to the pope in Rome as reward for his financial support.[150] Harder dedicated his largest herbarium to the Duke von Pfalz-Neuburg, Philipp Ludwig Count Palatine of Pfalz-Neuburg (1547-1614).[151] This volume is now kept in the Bayerische Staatsbibliothek in Munich. The herbarium dedicated to the Bishop of Knöringen would undoubtedly have found a place in the bishop's library or cabinet. It is unknown what happened to this herbarium and to those Harder made for the margrave of Baden-Durlach and Doctor Joan Kern in Innsbruck.

Cesalpino dedicated his first herbarium to Cosimo I de Medici (1519-1574), the Grand Duke of Tuscany. In 1563, he dedicated his second herbarium, according to the letter found at its beginning, to Alfonso Tornabuoni (1504-1557), the Bishop of Sansepolcro.[152]

Ratzenberger dedicated one of his herbaria in 1592 to the Landgrave of Hessen-Kassel, Moritz (1572-1632), who came to power in that year. In return he received a gilded cup filled with 100 gold florins.[153]

The Rauwolff herbaria and the En Tibi herbarium became part of the cabinet of Emperor Rudolf II (1552-1612) in Prague. In a letter to Clusius, dated 7 September 1584, he writes that he was prepared to offer the plants he had collected to a generous prince who wished to examine them. He would be grateful if Clusius could find such a person.[154] It would seem that Clusius did not succeed in this, because in 1593 Rauwolff sold them to Rudolf II who paid 310 taler for the four volumes.[155] A catalogue from 1607/1611 records the presence of five(!) volumes by Rauwolff in the collection of Rudolf II, three smaller ones and two large reddish ones. One of the large herbaria was described as having copper edges, as in Rauwolff's fourth volume.[156] The other red herbarium

must have been the En Tibi herbarium. The leather of the En Tibi is now brown, but originally it was a bright carmine colour. The expensive execution, together with the dedication on the front board, makes it highly likely that it was made especially to be presented to a high-ranking lady. To this day, it is still a mystery for whom it was made.

After Elector Palatine Frederick V (1596-1632) had lost the Battle of the White Mountain (1620), the first great battle of the Thirty Years War, part of the Prague art treasury was taken as booty by the troops of the Bavarian Elector Maximilian I (1573-1651). Previously, it was assumed that the herbaria were taken to Munich at that time and seized later by the Swedish troops of King Gustav Adolf II (1594-1632), in 1632.[157] It is now believed that they were taken in Prague in 1648, when Queen Christina I of Sweden (1626-1689) ordered her troops to loot that city before the Peace of Westphalia ended the Thirty Years War. An inventory of the booty was drawn up by the Swedes but did not include the herbaria.[158] The herbaria are mentioned, however, in the catalogue of Christina's library, that was drawn up around 1650.[159]

The Ratzenberger herbarium, currently held in Gotha, was probably also war booty from this period, as Duke Ernst I, the founder of this library, had served in the Swedish army during that war.[160]

It was not only the nobility and clergy who made cabinets of curiosity or 'Wunderkammern', because scholars did as well. Both Aldrovandi and Platter had a private museum which attracted many visitors. Another group of people who acquired and exhibited their collections of natural history, including herbaria, were pharmacists. Calzolari would have started his collection of dried plants by keeping separate the exotic herbs that he had received for his garden and that were no longer living upon arrival.[161] It is not certain whether or not these ended up in one or more of the books that can be seen in the illustration of his museum, but it is not impossible.

It is alleged that among the collections of Imperato was an extensive herbarium made up of eighty volumes (ill. 15).[162] This assertion has not been proven. Only one volume containg 442 plants survives in the Biblioteca Nazionale di Napoli and another 170 specimen that may have belonged to Ferrante Imperato's herbarium have been encountered in Domenico Cirillo's herbarium (18th century) at the Herbarium of the Facolta di Agraria, Universita di Napoli.[163] If this herbarium had truly consisted of so many volumes, and all volumes had a similar number of specimens, it would have contained more than 35,000 specimens! This would have been, by far, the most extensive herbarium collection of the sixteenth century. The image of the apothecary Ferrante Imperato's collection does indeed show a large number of books, but we do not know if these are all herbaria and not manuscripts and printed books or collections with images of plants and/or animals.

Final Remarks

The 'erbario A' in the biblioteca Angelica in Rome is still quoted as the 'oldest-known-herbarium'. It was supposedly made by Gherardo Cibo between 1530 and 1532. Both the attribution to Cibo and the early dating are more and more contested. Although there is no direct evidence, it is assumed more often that Francesco Petrollini has been involved in making this herbarium and that it is dated between 1550 and 1553. If the latter is true, then according to the current scientific literature, the following three herbaria qualify for this title; the lost English herbaria of William Turner and John Falconer from the early 1540s and the herbarium in Florence that had long been attributed to Merini and is said to date from the same time as those of Turner and Falconer (see table).

It is no coincidence that the first herbaria appeared around 1540, although the technique of preserving plants and flowers in this way was already known in the fourteenth century. The main reason must have been that at the end of the fifteenth century the herbalists were still primarily interested in identifying the medicinal plants described by ancient writers. They later set out to study the plants in their natural environment. The aim of their studies shifted as they started to make an inventory of all the plant species that grew on earth, so herbalists became botanists. In order to be able to compare newly discovered plants to previously identified specimens with their seasonal characteristics, an herbarium became a very useful tool. It is therefore doubtful whether much older herbaria existed. The results of the search for new plants was that, by the end of the sixteenth century, the number of known specimens had grown to 6,000 – ten times the number mentioned in Dioscorides's text.

Who can be considered the inventor of the herbarium is not clarified here. It seems that in Italy, Bologna was the hotspot where the idea of the herbarium was born and from which it was disseminated. It has also not been clarified whether the technique came to Bologna from England or the other way around. Ghini is still named as the inventor, but the first evidence that he knew how to make an herbarium dates from 1551. From Italy, the technique spread to Spain, perhaps by Laguna and probably by Rondelet to France. The foreign students of Rondelet brought the herbarium technique to Germany and Switzerland, but it is not impossible that Turner also played a role during his second exile.

In the sixteenth century, an herbarium was a valuable possession and many were part of important libraries and 'Kunstkammern', such as those of Rudolf II in Prague and Albrecht V in Munich. How much they were appreciated is demonstrated by the fact that Ratzenberger received a gold-plated cup with 100 gold florins for the herbarium that he dedicated to Moritz van Hessen-Kassel in 1592. They were prized objects later in history too, given that many herbaria were war booty in the Thirty Years War.

Just like today, the first herbaria were made for various purposes. Students prepared them to document their botany les-

sons. Travellers made them to refresh their memory at a later moment. Physicians and pharmacists made herbaria to use them, next to printed books, in order to recognize medicinal herbs. They often arranged the plants alphabetically or sometimes by habitus, trees, shrubs or herbs. Plants belonging to groups with easily recognisable characters, such as umbellifers and grasses, were grouped together. Occasionally, they were organized according to their medicinal effect. The herbarium of Cesalpino is the only one in which the plants are arranged methodically, reflecting his ideas about the systematic organization of the vegetable kingdom.[164] Later in the sixteenth century, herbaria were increasingly used, as they still are today, as a tool in all kinds of taxonomic research and as a source for identifying plants.

NOTES

[1] F.W.T. Hunger, *Charles de l'Escluse (Carolus Clusius). Nederlandsch kruidkundige (1526-1609)*.'s-Gravenhage 1927, pp. 266-267.
[2] Before this, Clusius had received some dried plants which had been collected by the physician Nicolaas Coolmans (d. 1601) during an expedition equipped by the old East Indian Company. Illustrations of these plants in Clusius' *Exoticorum Libri Decem* clearly show that they were made based on pressed-and-dried plants as examples (J. Heniger, 'De eerste Nederlandse wetenschappelijke reis naar Oost-Indie, 1599-1601', in: *Jaarboekje voor geschiedenis en oudheidkunde van Leiden en omstreken* 65 (1973), p. 37.).
[3] R. de Bury, *The Love of Books: The Philobiblion of Richard de Bury*. Translated by E.C. Thomas. New York 2009, p. 109.
[4] The first to use the word herbarium for such a collection may have been the Swiss naturalist Conrad Gesner in a letter to Caspar Wolf in 1556 (G.C. Druce, 'Herbaria', in: *The Botanical Society and Exchange Club of the British Isles* 6(5) (1923), p. 756).
[5] Thomas of Wroclaw, also known as Thomas von Breslau, Peter of Tilleberi, Thomas of Sarepta, Thomas of Preslau, Thomas Sareptensis or Thomas Wratislaviensis; born in 1297 in Tilbury, Essex.
[6] 'Joannes Falconerius Anglus, vir mea sententia cum quovis doctissimo herbario conferendus, et qui pro dignoscendis herbis varias orbis partes perlustraverat, quarum plures et varias miro artificio codici cuidam consitas ac agglutinatas afferebat […]' Translation Folkert van Straten (University Leiden): 'John Falconer Englishman, a man, in my opinion, who can stand the comparison with any highly learned herbalist, and who had crossed various parts of the world to [learn] to distinguish herbs, [herbs] of which he has brought numerous and different, collected and pasted with astonishing art skills in a certain book' (Amatus Lusitanus, *In Dioscuridis Anazarbei de medica materia libros quinque enarrationes eruditissimae*, Venetia 1553, p. 322).
[7] M. Salomon, *Amatus Lusitanus und seine zeit: Ein beitrag zur geschichte der medicin im 16. Jahrhundert*. Berlin 1901, p. 18, 24.
[8] W. Turner, *The Second Part of Vuilliam Turners Herball*. Cologne 1562, p. 67b: 'In Bonony […] where as I learned the knowledge of herbes and practis of physik of my master Lucas Ghinus'.
[9] B.D. Jackson, 'A Life of William Turner', London 1877, in: W. Turner, *Libellus de Re Herbaria* 1538; *The Names of Herbes* 1548. Facs. London 1965, p. ii.
[10] Jackson, op. cit. (n. 9), p. vi.
[11] Turner, op. cit. (n. 8), p. 11b: 'I neuer sawe it in Engelande, sauinge onlye in maister falkonners boke, and that had he browght out of Italy'.
[12] Turner, op. cit. (n. 8), p. 91b: '[…] that I saw in Bonony, where of I haue certayn at thys day to shewe, well kept in a booke at the lest these seuentene yeares'.
[13] Turner, op. cit. (n. 8), p. 63a: '[I]n Germany there is not suche choyse of simples in euery place as is in Venis, yet in thys yere of our lorde 1557'.
[14] Jackson, op. cit. (n. 9), p. ix.
[15] J. Bauhin, *Historia Plantarum Universalis*. Ebroduni 1650, p. 225: 'Porrò iam ante 30. annos insignis medicus Pet. Turneranus nos donavit Herbario sicco plantarum Anglicanum' Translation: 'Furthermore, already thirty years ago now, the distinguished doctor, Peter Turner, presented us with dried herbarium specimens of English plants'.
[16] G. Moggi, 'Gli erbari in Italia', in: F. Taffetani, *Herbaria. Il grande libro degli erbari Italiani*. Firenze 2012, p. 790.
[17] L.T. Tomasi, 'Gherardo Cibo: Visions of Landscape and the Botanical Sciences in a Sixteenth-century Artist', in: *Journal of Garden History* 9:4 (1989), pp. 199-200.
[18] J. Rickard, 'Francesco Maria I Della Rovere, Duke of Urbino, 1490-1538', 10 March 2015, http://www.historyofwar.org/articles/people_urbino_francesco_maria_I.html
[19] Tomasi, art. cit. (n. 17), p. 200.
[20] Moggi, op. cit. (n. 16), p. 790.
[21] Tomasi, art. cit. (n. 17), p. 200. One of the illustrations made by Cibo in a manuscript, dated *c.* 1564-1584, of the Italian edition of Mattioli's *Discorsi* (1548). A herbalist collecting 'Ciclamino Pan Porcino' (*Cyclamen europaeum* L.) (http://www.bl.uk/manuscripts/Viewer.aspx?ref=add_ms_22332_fs001r)
[22] A. Stefanaki et al., 'Breaking the Silence of the 500-year-old Smiling Garden of Everlasting Flowers: The En Tibi Book Herbarium', in: *PLoS ONE* 14:6 (2019), p. 11 (https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0217779)
[23] http://aldrovandi.dfc.unibo.it/biografia_frame.html
[24] Stefanaki et al., art. cit. (n. 22), pp. 11-12.
[25] A. Soldano, 'L'erbario di Ulisse Aldrovandi', in: *Atti dell'instituto Veneto di Scienze, Lettere ed Arti* 160 (2002), pp. 211-216.
[26] Moggi, op. cit. (n. 16), p. 790.
[27] F.A. Stafleu, 'Die Geschichte der Herbarien', in: *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 108:2/3 (1987), pp. 156-157.
[28] G. Cristofolini & C. Nepi, 'La paternità del cosiddetto "Erbario Merini" conservato presso il Museo di Storia Naturale dell'Università di Firenze: una questione aperta, in: Notiziario della Società Botanica Italiana. 5 (2021): 1-4.
[29] A list of the plants in this herbarium, and their modern Latin names is given by Chiovenda (E. Chiovenda, 'Un antichissimo erbario anonimo del museo botanico di Firenze', in: *Annali di Botanica* 19:1 (1930), pp. 143-144).
[30] F. Rabelais, *Gargantua and Pantagruel*, translated and edited by M.A. Screech. Penguin Books 2006: 'Passing through meadows, and other verdant places where they would examine the trees and plants, comparing them with the books of the Ancients who had written about them, such as Theophrastus, Dioscorides, Marinus, Plinie, Nicander, Macer and Galen, and carrying home great handfuls of specimens which were the responsibility of a young page called Rhizotome, as were the mattocks, diggers, hoes, spades, pruning shears and other tools for gardening and serious botanizing.' In the next chapter he wrote: '[W]hen it was raining, instead of going outside, they visited the shops of the pharmacists, herbalists and druggist, where they observed closely the fruits, roots, leaves, gums and resins, seeds and exotic ointments and the way in which these were prepared.'
[31] C. Flatt von Alföld, 'Zur Geschichte der Herbare' in: *Ungarische botanische Blätter* 1 (1902), p. 64; B. Schorler, 'Uber Herbarien aus dem 16. Jahrhundert', in: *Sitzungsberichte und Abhandlungen der naturwissenschaftlichen Gesellschaft Isis in Dresden* 2 (1907), p. 74.
[32] De Bury, op. cit. (n. 3), p. 109: 'Now the rain is over and gone, and the flowers have appeared in our land. Then the scholar we are speaking of, a neglecter rather than an inspecter of books, will stuff his volume with violets, and primroses, with roses and quatrefoil.'
[33] F.A. Baumann, *Das Erbario Carrarese und die Bildtradition des Tractatus de herbis*. Bern 1974, p. 91.
[34] V. Saint-Lager, 'Histoire des herbiers', in: *Annales de la Société botanique de Lyon* 13 (1885), p. 16: 'Non negaverim plures me dedisse plantarum imagines quae e siccis plantis ad me transmissis delineari curaverim, sed affirmaverim etiam, quod aquae gelidae maceratione contractas et siccitate rugas adeo in iis extenderim, ut hac ratione redivivae et parum admodum a viridibus distantes viderentur.'
[35] B.W. Ogilvie, 'The Many Books of Nature: Renaissance Naturalists and Information Overload', in: *Journal of the History of Ideas* 64:1 (2003), p. 30.
[36] Ogilvie, op. cit. (n. 35), p. 30.
[37] Baumann, op. cit. (n. 33), p. 91; Another and possibly older (*c.* 1480) example is a manuscript that is kept in the Biblioteca Nazionale in Florence. It contains recipes for paints and dyes and may have been owned by a pharmacist. Unfortunately, it suffered a great deal of damage in the flood of 1966 and all the plants that had been attached to it have now disappeared. As it can no longer be studied due to its damaged state, the date cannot be verified. See S. Toresella & M. Battini, 'Gli erbari a impressione e l'origine del disegno scientifico', in: *Le Scienze* 239 (1988), p. 75.
[38] W. Rytz, *Pflanzenaquarelle des Hans Weiditz aus dem Jahre 1529*. Bern 1936, p. 23; C. Nissen, *Die botanische Buchillustration: ihre Geschichte und Bibliographie*. Stuttgart 1951-1952, p. 244; Toresella & Battini, art. cit. (n. 37), p. 75.
[39] C.B. Schmitt, 'The Correspondence of Jacques Daléchamps (1513-1588)', in: *Viator* 8 (1977), p. 403.

[40] Michiel's 5-volume illustrated codex (1553-1576). Biblioteca Nazionale Marciana (It. II. 26-30).
[41] J. Camus, 'Historique des premiers herbiers', in: *Malpighia* 9 (1895), p. 300.
[42] H.P. Fuchs-Eckert, 'Die Familie Bauhin in Basel', in: *Bauhinia* 6:1 (1977), p. 37; Saint-Lager, art. cit. (n. 34), pp. 17-22.
[43] Ogilvie, art. cit. (n. 35), p. 30.
[44] E.H.F. Meyer, *Geschichte der Botanik*, vol. 4, Königsberg 1857, p. 272, Maranta writes: 'Scito, plantas omnes, quas a[d] te Pisis Lucas Ghinus anno abhinc nono misit, mihi prius ab eo fuisse ostensas, inscriptionesque, quas singulis plantis apposuerat, non solum vidisse me, sed etiam descripsisse.'
[45] Meyer, op. cit. (n. 44) p. 273.
[46] Flatt von Alföld, art. cit. (n. 31), pp. 147-149.
[47] A. Arber, *Herbals*. Cambridge 2010, p. 139; F. Garbari, 'I «Prefeti» del Giardino dalle origini', in: F. Garbari, L. Tomasi & A. Tosi, *Giardino dei Semplici. L'Orto botanico di Pisa dal XVI al XX secolo*. Pisa 1991, p. 33.
[48] A. Pavord, *The Naming of Names: The Search for Order in the World of Plants*. London 2005, p. 225.
[49] E.L. Greene, *Landmarks of Botanical History*. F.N. Egerton (ed.), Stanford 1983, vol. 2, p. 703.
[50] U. Aldrovandi, Aldrovandi on chicken. L.R. Lind (trans.), Norman 1963, p. xx.; www.filosofia.unibo.it/aldrovandi/biografia_frame.htm
[51] P. Findlen, *Possessing Nature*. California 1996, p. 261; www.filosofia.unibo.it/aldrovandi/biografia_frame.htm
[52] G.B. de Toni, 'I placiti di Luca Ghini (primo lettore dei semplici in Bologna) intorno a piante descritte nei Commentarii al Dioscoride di P. A. Mattioli'. In: *Atti dell'instituto Veneto di Scienze, Lettere ed Arti* 27(8) (1907), p. 13, 'due piante essiccate ed attaccate col glutine alle carte'.
[53] C. Bellorini, *The World of Plants in Renaissance Tuscany: Medicine and Botany*. New York 2016.
[54] Stefanaki et al., art. cit. (n. 22), pp. 11-12. It is known that Petrollini was making books (with dried plants?) for others. In a letter to Aldrovandi of March 8, 1553 he mentions: 'I have not sent you the fine herbs at this point, or rather I have not managed to send them to you, I am making a book for Messer Filippo [Teodosio].' Stefanaki et al., art. cit. (n. 22), pp. 17; Filippo was the son of Ghini's colleague G. Teodosio and lecturer in Bologna from 1537 until his death in 1554.
[55] Lind, op. cit. (n. 50), pp. xxv-xxvi; K.M. Reeds, *Botany in Medieval and Renaissance Universities*. New York, etc. 1991, p. 190, Aldrovandi claimed that he was the first to have discovered how you could dry plants between sheets of paper so that they looked as if they had been painted. It is, however, not clear whether he meant that he was the first to make an herbarium or only that he had perfected the technique.
[56] Saint-Lager, art. cit. (n. 34), p. 19; Camus, art. cit. (n. 41), p. 294; Flatt von Alföld, art. cit. (n. 31), p. 71.
[57] R. Pulteney, *Historical and Biographical Sketches of the Progress of Botany in England from its Origin to the Introduction of the Linnaean system*, vol. 1, London 1790, p. 60: 'Could learne neuer one Greke, nether Latin, nor English name, even amongst the Phisicions of anye herbe or tre, suche was the ignorance in simples at that tyme.'
[58] Jackson, op. cit. (n. 9), p. v.: 'There haue bene in England, and there are now also certain learned men: which haue as much knowledge in herbes, yea, and more then diuerse Italianes and Germanes, whyche haue set furth in prynte Herballes and bokes of simples. I mean of Doctor [John] Clement [*c.* 1500-1572], Doctor [Thomas] Wendy [1499/1500-1560], and Doctor [George] Owen [1499-1558], Doctor [Edward] Wotton [1492-1555] & Maister Falconer. Yet hath none of al these, set furth any thyng, ether to the generall profit of hole Christendome in latin, & to the honor of thys realme, nether in Englyshe to the proper profit of their naturall countre.'
[59] L. Knight, *Of Books and Botany in Early Modern England: Sixteenth-Century Plants and Print Culture*. Aldershot 2009, p. 37.
[60] P.S. Allen (ed.), *Opus epistolarum Des. Erasmi Roterodami*, vol. 2: 1514-1517, Oxford 1910, p. 56.
[61] R. Dodoens, *Cruijdeboeck*. Antwerpen 1554, ii: 'Because they [the physicians] believed that such science or knowledge did not befit them, rather belonged to apothecaries or other uneducated people who sought herbs in the woods or fields every day, and that it would have been a disgrace to them, or else a needless bother to learn about herbs and to study them. And because of this, this science became so contaminated, defiled and clouded with many mistakes, annoying and harmful errors that sometimes poisonous and bad medicines were given as good herbs to poor, ill, sick people.'
[62] L. Fuchs, *New Kreüterbuch*, Basel 1543, p. 2: '[I]n ansehung das mir wol bewüþt, wie vor wenig jaren die erkantnuþ fast aller kreüter bey dem mehren teyl der artzet allso gantz und gar erloschen ist gewesen, und in einen abgang kommen, das man wenig gefunden hat, die zehen kreüter recht und grüntlich erkennt haben, dieweil sie sich mit disem handel nit seer bekümmert, sonder denselben auff die allten weiber, und ungelerten Apotecker geschoben, gleich als were es jnen z verweissen oder ettwas uneerlich gewesen, sich mit sôlcher unnôtiger so g der erfo schung der kreüter z beladen.' Translation: 'Since I well know how over the years the knowledge of almost all herbs has been totally clouded, and has declined among most medical scholars, that there are few to be found who know ten herbs properly and thoroughly, I noticed that they barely concern themselves with these matters, rather leave it to old women and uneducated apothecaries, as if it were a shame and dishonour to burden them with such an unnecessary bother as the study of herbs.'
[63] Pulteney, op. cit. (n. 57), p 72; Flatt von Alföld, art. cit. (n. 31), p. 178.
[64] Camus, art. cit. (n. 41), p. 296.
[65] Flatt von Alföld, art. cit. (n. 31), pp. 178-179; Saint-Lager, art. cit. (n. 34), p. 20.
[66] F.E. Eckblad, 'Var et av verdens eldste herbarier norsk?', in: *Blyttia* 41 (1983), p. 126; J.I.I. Båtvik, 'Gamle bevarte herbarier, og Ostfolds eldste herbariebeleg', in: *Natur i Østfold* 19:1 (2000), p. 18.
[67] A. Laguna, *Pedacio Dioscorides Anazarbeo acerca de la materia medica medicinal y de los venenos mortiferos*. Antwerp 1555.
[68] I. Walser-Bürgler, 'Staging Oratory in Renaissance Germany: The Delivery of Andrés Laguna's Europa Heautentimorumene' (1543), in: *Rhetorica* 38:1 (2020), pp-88-89.
[69] R. Kaiser, 'Tota caduca et dehischens Europe's Critical Conditions in Andrés Laguna's Europa (1543)' In: N. Detering, C. Marisco & I. Walser-Bürgler (eds), *Contesting Europe: Comparative Perspectives on Early Modern Discourses on Europe, 1400-1800*, Leiden & Boston 2020, p. 42.
[70] Laguna, op. cit. (n. 67), p. 342: 'Hallase gran copia del [Trebol bituminosa] el junto à S. Iuen de Letran en Roma, de donde yo mismo cogi una planta que aun tengo entre otras conglutinada.'
[71] Laguna, op. cit. (n. 67), p. 302: 'Hallase gran copia del Ligustico natural en las montañas de Genoua y no menos en los collados vecinos à Trento: adonde se le mostre yo el año passaado a Diego de Monte.'
[72] Walser-Bürgler, art. cit. (n. 68), pp. 88-89.
[73] E. Andretta & J. Pardo-Tomás, 'Books, Plants, Herbaria: Diego Hurtado de Mendoza and his Circle in Italy (1539-1554)', in: *History of Science* 58:1 (2020), pp. 5-6, p. 14.
[74] Andretta, art. cit. (n. 73), p. 2.
[75] M. Colmeira, 'Examen historico-critico de los trabajos concernientes a la Flora Hispano-Lusitana', in: *Boletin-revista de la Universidad de Madrid* 2 (1870), p. 989; M.M. Carrión, 'Planted Knowledge: Art, Science and Preservation in the Sixteenth-Century Herbarium from the Hurtado de Mendoza Collection in El Escorial', in *Journal of Early Modern Studies* 6:1 (2017), pp. 47-67.
[76] Andretta, art. cit. (n. 73), p. 3.
[77] Stafleu, art. cit. (n. 27), p. 29
[78] Some 300 specimens have been removed from the volumes of Aldrovandi's herbarium. A number of these missing specimens were found in the eighteenth-century herbarium collections of Monti and Bassi that are also kept at at l'Orto Botanico ed Erbario di Bologna. See U. Mossetti, 'Catalogo dell'Erbario di Ulisse Aldrovandi: i campioni ritrovati negli erbari di Giuseppe Monti e Ferdinando Bassi', in: *Webbia* 44:1 (1990), p. 151.
[79] Catalogues of the plants in the first five volumes have been published. See O. Mattirolo, 'Illustrazione del volume primo dell'Erbario di Ulisse Aldrovandi', in: *Malpighia* 12 (1898), pp. 241-384; G.B. de Toni, 'Ilustrazione del volume II dell'Erbario di Ulisse Aldrovandi', in: *Atti dell'instituto Veneto di Scienze, Lettere ed Arti* 68 (1908a), pp. 523-634; G.B. de Toni, 'Illustrazione del III volume dell'Erbario di Ulisse Aldrovandi', in: *Malpighia* 22 (1908b), pp. 209-310; G.B. de Toni, 'Illustrazione del quarto volume dell'Erbario di Ulisse Aldrovandi', in: *Atti dell'instituto Veneto di*

Scienze, Lettere ed Arti 71:2 (1912), pp. 39-131; P. Scaramella, 'Illustrazione del V tomo dell'Erbario di Ulisse Aldrovandi', in: *Att. Accad. Sci. Ist. Bologna – Scienze Fisiche Memorie Serie I*, 1 (1954), pp. 1-55.

[80] Lind, op. cit. (n. 50), pp. xx-xxii

[81] Lind, op. cit. (n. 50), p. xx.; Camus, art. cit. (n. 41), p. 298; Findlen, op. cit. (n. 51), p. 180; http://aldrovandi.dfc.unibo.it/biografia_frame.htm

[82] A.S. Troelstra, *Bibliography of Natural History Travel Narratives*. Zeist (2016). P. 94.

[83] G. Moggi, 'L'erbario di Andrea Cesalpino', in: C. Nepi & E. Gusmeroli, *Gli erbari aretini da Andrea Cesalpino ai giorni nostri*. Firenze 2008, p. 9.

[84] A.G. Morton, 'Marginalia to Andrea Cesalpino's Work on Botany', in: *Archives of Natural History* 10:1 (1981), p. 32.

[85] Camus, art. cit. (n. 41), p. 304.

[86] K. *Whitaker, 'The Culture of Curiosity', in: N. Jardine, J.A. Secord & E.C. Spary (eds.), Cultures of Natural History. Cambridge* 1996, pp. 88-89.

[87] S. Toresella, 'La prima piante americana negli erbari del Cinquecento', in: *Le Scienze* 281 (1992), p. 55.

[88] Stefanaki et al., art. cit. (n. 22), p. 18.

[89] The plants in this herbarium are recently identified for the first time. See A. Stefanaki et al., 'The En Tibi Herbarium, a 16th Century Italian Treasure', in *Botanical Journal of the Linnean Society* 187:3 (2018), pp. 1-31.

[90] Stefanaki et al., art. cit. (n. 22), p. 11.

[91] The Erbario Ducale Estense is described by Camus and Penzig. See J. Camus & O. Penzig, 'Illustrazione del ducale erbario Estense, conservato nel R. Archivio di Stato in Modena', in: *Atti della Società dei naturalisti di Modena* IV (1885), pp. 14-59.

[92] Walser-Bürgler, art. cit. (n. 68), pp. 88-89.

[93] P. Findlen, 'Natural History', in: K. Park & L. Daston (eds.), *The Cambridge History of Science*, vol. 3, Early Modern Science. Cambridge 2006, p. 452.

[94] D. Friedberg, *The Eye of the Lynx: Galileo, his Friends, and the Beginnings of Modern Natural History*. Chicago 2002, p. 253.

[95] J.M. Lopez Pinero & J. Pardo-Tomás, 'Nuovos materiales y noticias sobre la historia de Nueva Espana, de Francisco Hernandez', in: *Cuadernos Valencianos de Historia de la Medicina y de la Ciencia XLIV (1994) Serie A (monografias)*, p. 27.

[96] Findlen, op. cit. (n. 93), p. 452.

[97] Pavord, op. cit. (n. 48), p. 275.

[98] Felix Platter, *Beloved Son Felix: The Journal of Felix Platter a Medical Student in Montpellier in the Sixteenth Century.* S. Jennett & J. Lindsay (eds.), London 1962, p. 88.

[99] H.F. Kessler, *Das älteste und erste Herbarium Deutschlands, im Jahr 1592 von Dr. Caspar Ratzenberger angelegt, gegenwärtig noch im Königlichen Museum zu Cassel befindlich, beschrieben und commentirt*. Cassel 1870, pp. 11-12; H. Schelenz, 'Pflanzensammlungen und Krauterbucher, mit besonderer Bezugnahme aus dem hiesigen Museum gehorige alteste und eine andere Krautersammlung und eine Holzbibliothek', in: *Abhandlungen und Bericht 49 des Vereins für Naturkunde zu Kassel* (1905), pp. 122-123.

[100] R. Ehwald, Caspar Ratzenberger. Ein Nachtrag über Georg Dasch. *Mittheilungen der Vereinigung für Gothaische Geschichte und Altertumsforschung* (1919), pp. 29-30.

[101] Kessler, op. Cit. (n. 99), p. 15.

[102] Kessler, op. Cit. (n. 99), pp. 23-24; Schelenz, art. Cit. (n. 99), pp. 122-125.

[103] Schelenz, art. Cit. (n. 99) p. 123; Kessler, op. Cit. (n. 99), p. 9, 'Indehme das ich […] in Italia viel und allerley gewechs gesehenn Selbstenn gesuchet unnd mit allem vleiss eingeleget unndt mit mir in meinn Patriam nach Sallfeldt geführet' – '(Since I […] in Italy have seen and searched many and all kinds of plants, and diligently preserved them and taken with me to Saalfeld in my homeland).'

[104] Jackson, op. cit. (n. 9), p. vi, xv.

[105] Fuchs-Eckert, art. cit. (n. 42), p. 38.

[106] M. de Querlon, *Journal du voyage de Michel de Montaigne en Italie par la Suisse et l'Allemagne en 1580 et 1581*, vol. 1. Rome 1774, pp. 44-45.

[107] Pavord, op. cit. (n. 48), p. 284.

[108] K. Ganzinger, 'Rauwolff und Fuchs. Ein Beitrag zur Geschichte der Botanik im 16. Jahrhundert', in: *Veröffentlichungen der Internationalen Gesellschaft für Geschichte der Pharmazie e. V. Neue Folge* 22 (1963), p. 26-30; fig. 4 en 5, pp. 70-71.

[109] L. Rauwolff, *Aigentliche beschreibung der Raiss etc.* Laugingen 1582, pp. 1-2.

[110] K.H. Dannenfeldt, *Leonhard Rauwolf: Sixteenth Century Physician, Botanist, and Traveller*. Cambridge 1968, pp. 31-32.

[111] A. Ghorbani et al., 'Botanical and Floristic Composition of the Historical Herbarium of Leonhard Rauwolff Collected in the Near East (1573-1575)', in *Taxon* 67:3 (2018), pp. 565-580.

[112] Schelenz, art. cit. (n. 99), p. 127; Kessler, op. cit. (n. 99), pp. 21-2: 'Und können aus diesem meinem Herbario vivo junge Medici unnd Medicinae Tyrones innerhalb acht tagen so viell aus und einländische kreuter und simplicia kennen lernen als ich ohnferniglichenn wol in zehenn oder zwölff iharen zu lernenn und zu kenenn nicht vermochte.'

[113] G. Zahn, 'Das Herbar des Dr. Caspar Ratzenberger (1598) in der Herzoglichen Bibliothek zu Gotha', in: *Mitteilungen des Thüringschen Botanischen Vereins. Neue Folge* 16 (1901), p. 50, 52.

[114] In 1591, Leiden University tried to attract Paludanus as head of the newly planned Hortus Botanicus. The university was keen to have him, including his cabinet of curiosities: '[M]et alle zijne 'tsamen vergaerde seltsaemheden, zo van cruyden, vruchten, spruytsels, gedierten, schepselen, mineralen, aerde, veninen, gesteenten, marmeren, coralen etc. ende andere die hij heeft.' In the end, Paludanus renounced this position because his wife did not want to leave Enkhuizen. Leiden University then attracted Clusius.

[115] A. Binz, 'Die Herbarien der botanischen Anstalt Basel', in: *Verhandlungen der Naturforschenden Gesellschaft in Basel* 19:3 (1908), p. 143.

[116] Camus, art. cit. (n. 41), p. 299-230

[117] H. Fischer, *Conrad Gessner (26. März 1516-13. Dez. 1565): Leben und Werk*. Zürich 1966, pp. 134-138

[118] Pulteney, op. cit. (n. 57), p. 84..; C.E. Raven, *English naturalists from Neckam to Ray*, Cambridge 1947, p. 164.

[119] W. Nezadal, J. Stiglmayr & W. Welss, 'Botanische Sammlungen'. In: U. Andraschke & M. Ruisinger (eds.): *Die Sammlungen der Universität Erlangen-Nürnberg*, Erlangen 2007, pp. 97-107; A. Uhl, 'Das "Herbarium Erlangense ER" der Friedrich-AlexanderUniversität Erlangen-Nürnberg', in: *RegnitzFlora. Mitteilungen des Vereins zur Erforschung der Flora des Regnitzgebietes* 7 (2015), p. 51.

[120] W. Dobras, 'Hieronymus Harder – sein Leben, seine Herbarien (II)', in: *Pharmazeutische Zeitung* 34 (1970), p. 1213: 'Und wie wol man auch in Teusch und Waelsch landen Laebendige Kreutter bücher macht, sind sy doch den nicht gleich, Dan die Kreuter sind schlecht abgebrest und in die biecher gelegt, und die staengel sind dan mit schmalen briefflin überleimpt, und sind die blettl all laedig, fallen gar liederlich dauon' – 'And although living herbals are made in Italian as well as in German countries, these are not the same because the herbs laid in the books are badly pressed and the stems are then fastened with small strips of paper; the pages completely empty, the leaves fallen slovenly off.'

[121] W. Dobras, 'Hieronymus Harder und seine zwölf Herbare', in: *Montfort Zeitschrift für Geschichte Voralbergs* 65: 2 (2013), p. 126, 139.

[122] K.G. Veesenmayer, 'Herbarium Hieronymus Harders', in: *Jahresheften des Vereins für vaterländische Naturkunde in Württemberg* 12 (1856), p. 56; W. Dobras, 'Hieronymus Harder – sein Leben, seine Herbarien (III)', in: *Pharmazeutische Zeitung* 37 (1970), p. 1327.

[123] W. Dobras,'Hieronymus Harder – sein Leben, seine Herbarien (I)', in: Pharmazeutische Zeitung 33 (1970), p. 1183; F. Speta & F. Grims, 'Hieronymus Harder und sein 'Linzer' Herbarium aus dem Jahre 1599', in: *Linzer biologische Beiträge* 12 (1980), p. 307.

[124] Dobras, art. cit. (n. 123), pp. 1183-1184.

[125] Dobras, art. cit. (n. 123), p. 1218.

[126] Dobras, art. cit. (n. 121), pp. 128, 135, 137, 13. The wooden boards of Harder's herbaria in Salzburg (1592), Vienna (1594), Ulm (1594) and the 'Bruderer' herbarium (1590s) are covered with white leather. There are imprints of human figures on both sides of the book, but on either the front or the back Judith and Holofernes can always be seen.

[127] Dobras, art. cit. (n. 123), p. 1212.

[128] K. Figala & E. Renatus, 'Herbarien aus dem 16. Jahrhundert', in: *Kultur & Technik* 4 (1980), p. 27.

[129] Dobras, art. cit. (n. 121), pp. 124-125; L.T. Tomasi & T. Willis, *An Oak Spring Herbaria: Herbs and Herbals from the Fourteenth to the Nineteenth*

Centuries: A Selection of the Rare Books, Manuscripts and Works of Art in the Collection of Rachel Lambert Mellon. Yale University Press 2009, p. 327.

[130] W. Ilg, *Geschichte der Botanik in Regensburg. 200 Jahre Regensburgische Botanische Gesellschaft 1790-1990*. Exhibition catalogue Museen der Stadt Regensburg 14. Juli bis 7. Oktober 1990. Regensburg 1990, p. 101.

[131] J.W. Bammert, 'Excursion nach Überlingen am Bodensee zur Sonderausstellung Theatrum Botanicum, 24.7.2005', in: *Badischer Landesverein für Naturkunde und Naturschutz*. Freiburg. p. 6 (https://www.blnn.de/pdfs/theatrumbotanicum.pdf)

[132] 'So hatt nur ain Kunstreicher auch groser Liebhaber der Kreiter, in der weitberiempten Statt Ulm ain sunderige Kunst erdacht solche Kreiter in die Biecher zuo fasenn ds solche Kreiter so lang als ds Papeir in dem Buoch weret ohn versehrung der Milben unnd Schaben bleiben, welche Kunst auch mir von ainem seinem geliebten Dochterman mitgethailt ist worden.' – 'Only a skillful man and great lover of herbs, in the famous city of Ulm, could have come up with such an art of gathering such herbs in books, so that they last as long as the paper in the book, without being damaged by mites and roaches, which art one of his beloved sons-in-law also passed on to me.'

[133] Bammert, art. cit. (n. 131), p. 6.

[134] G. Meyer, E.E. Trueblood & J.L. Heller, *The Great Herbal of Leonhart Fuchs*, vol. 1 Commentary, Stanford 1999, p. 183.

[135] Daléchamps had studied in Montpellier in 1545, before Rondelet's journey to Italy in 1549. There is a letter (1551) from Ehrhardus Zeyselius which shows that Daléchamps was already famous for his botanical collections then, and in which he was asked to send material to Rondelet; Schmitt, op. cit. (n. 39), p. 402. Another of Rondelet's correspondents kept him informed about Rondelet's affairs. Whether Daléchamps ever had a real herbarium is not clear.

[136] Saint-Lager, art. cit. (n. 34), p. 51, 'Crainte de Dieu. Ce présent livre a été commencé par moi Jehan Girault, ce 6 jour d'aoust 1558, etant pour lors prieur des etudiants en chirurgie, sous monsieur Jehan Canappe, regent de la Faculte de medecine de Paris, lecteur aux chirurgiens de Lyon'. Translation: 'This book was begun by me, Jehan Girault on the 6th of August 1558 for the surgery students of Mr. Jehan Canappe, regent of the Faculty of Medicine in Paris, lector of surgery in Lyon.'

[137] Camus, art. cit. (n. 41), pp. 306-307. According to Camus, the plants in Falconer's herbarium were not only glued, but also sewn onto the paper. For this reason, he inferred that Girault took his inspiration to mount his specimens this way after reading (a later edition) of Amatus's *Enarrationes*.

[138] S. Valette, 'L'entree au Musee du Louvre du portrait de l'apothicaire Pierre Quthe par Francois Clouet', in: *Revue d'histoire de la pharmacie* 79:289 (1991), pp.173-177.

[139] A. Schnapper, *Le géant, la licorne et la tulipe. Collections et collectioneurs dans la France du XVI-Ie siecle. I. Histoire et histoire naturelle*. Paris 1988, pp. 38-39.

[140] M.J.M. Christenhusz, 'The Hortus Siccus (1566) of Petrus Cadé: a Description of the Oldest Known Collection of Dried Plants Made in the Low Countries', in: *Archives of Natural History* 31:1 (2004), pp. 30-43.

[141] The largest section of Selden's collection went to the Bodleian Library in Oxford. Some of it remained with Matthew Hale (1609-1676), one of the executors of Selden's estate. When, shortly before World War II, James Fairhurst was inspecting one of the outbuildings of Alderley Grange (Alderley, Gloucestershire) belonging to the Hale family, he came upon a large number of papers including the manuscripts left behind by Selden and Hale. Fairhurst purchased them, thereby rescuing them, and sold a number of them in the following years. Hugo Grotius, '*De imperio summarum potestatum circa sacra*', in H.-J. van Dam (ed.), *Studies in the History of Christian Thought* 102, vol. 1, Leiden etc. 2001 pp. 63-64.

[142] *Catalogus Rarorum Et Insignium Librorum Petri Paaw […] Quorum Auctuio Habebitur in Aedibus Isaaci Commelini, a Diem 22 Apr. 1638*. Lugduni Batavorum 1638.

[143] C.G. Cristofolini et al., 'Pre-linnean herbaria in Bologna: some newly discovered collections from the time of Ulisse Aldrovandi', in: *Webbia* 48 (1993), p. 556; Carriòn, art. cit. (n. 75), p. 48.; Camus, art. cit. (n. 41), p. 300.

[144] Dobras, art. cit. (n. 122), p. 1327.

[145] In Harder's herbarium, now kept in Salzburg, he mentions that he had dedicated one of his herbaria to the bishop of Dillingen. He and Johann Egolf van Knöringen are probably the same person.

[146] Could this be Johannes Kern from Klagenfurt? He matriculated at the Wittenberg University in 1586.

[147] W. Prommer, *Standortkatalog der lateinischen und deutschen Handschriften*, Bayerische Staatsbibliothek, Cbm Cat. 61, Munich, 1582

[148] H. Leuchtmann, 'Ein Itinerar Herzog Albrecht V von Bayern für die Jahre 1572-1579', in: *Zeitschrift für Bayerische Landesgeschichte* 34 (1971), p. 831.

[149] M. Schinnerl, 'Ein neues deutsches Herbarium aus dem XVI. Jahrhundert', in: *Berichte der Bayerischen Botanischen Gesellschaft in München* 13 (1912), p. 207.

[150] Dobras, art. cit. (n. 123), p. 1213.

[151] https://codicon.digitale-sammlungen.de/inventiconCod.icon.%203.html?pos=2&high=&suche=body%3Aharder%20

[152] F. Parlatore, *Les collections botaniques du musée royale de physique et d'histoire naturelle de Florence au printemps de 1874*. Florence 1874, p. 56.

[153] Kessler, op. cit. (n. 99), p. 23.

[154] Dannenfeldt, op. cit. (n. 110), p. 229.

[155] Eingangs-/Ausgangsprotokol der Hofkammer Staudinger, Manfred, *Kaiser Rudolph II. und seine Welt*, http://documenta.rudolphina.org; http://www.voynich.nu/history.html. The sale of the Rauwolff Herbarium to Rudolf II is contested by what Hans Ulrich Krafft (1550-1621), Rauwolff's travelling companion in the Orient, has written. Rauwolff had told him that his work had been sold to the 'Kunstkammer' in Munich for 200 guilders. In: K.D. Haszler & H.U. Krafft, *Reisen und Gefangenschaft Hans Ulrich Kraffts*. Stuttgart 1861, p. 162; Dannenfeldt, op. cit. (n. 110), p. 229.

[156] R. Bauer, & H. Haupt, 'Das Kunstkammerinventar Kaiser Rudolfs II. 1607-1611', in: *Jahrbuch der kunsthistorischen Sammlungen in Wien* 72 (1976) 1-191.

[157] C. Callmer, 'Queen Christina's herbaria', in: F. Sandgren (ed.), *Otium et Negotium*. Stockholm 1973, p. 35.

[158] B. Dudik, 'Die Rudolphinische Kunst- und Raritätenkammer in Prag', in: *Mitteilungen der K. K. Central-Commission zur Erforschung und Erhaltung der Baudenkmale* 12 (1876), p. 348.

[159] Callmer, op. cit. (n. 157), p. 32.

[160] A. Thiele, 'The Prince as Military Entrepeneur? Why Smaller Saxon Territories sent "Holländische Regimenter" (Dutch regiments) to the Dutch Republic', in: J. Fynn-Paul (ed.), *War, Entrepeneurs, and the State in Europe and the Mediterranean, 1300-1800*. Leiden 2014, p. 177

[161] H.J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age*. New Haven etc. 2007, p. 29.

[162] A. de Natale, N. Cellinese, 'Imperato, Cirillo, and a Series of Unfortunate Events: A Novel Approach to Assess the Unknown Provenance of Historical Herbarium Specimens', in: *Taxon* 58: 3 (2009), pp. 963-965.

[163] De Natale & Cellinese, op cit. (n. 162), p. 963.

[164] Stafleu, art. cit. (n. 27), p. 157.

ABOUT THE AUTHOR

Gerard Thijsse (1951) was responsible for more than twenty years for the collections at the National Herbarium of the Netherlands, now part of Naturalis Biodiversity Centre in Leiden. The historical herbaria in that collection, some of which date from the sixteenth century, sparked his interest in the history in plant taxonomy and the origins of the herbarium as a research instrument.

'"CHRONOLOGICAL" LIST OF HERBARIA KNOWN TO HAVE BEEN MADE IN THE SIXTEENTH CENTURY				
Date	**Maker**	**Title / signature**	**Size (mm)**	
>1540	William Turner (1508-1568)			
<1547	John Falconer			
>1544	Anonymous, but in the past attributed to Michele Merini		342x234	
1545-1559	Andrés Laguna (1499-1559)			
1545-1554	Anonymous	Volume 1	Folio	
1545-1554		Volume 2		
1545-1554		Volume 3		
1545-1554		Volume 4		
1550-1553	Maybe Francesco Petrollini (fl. 1550), but officially still attributed to Gherardo Cibo (1512-1600)	Erbario A	322x195	
1550-1553	Attributed to Francesco Petrollini (fl. 1550)	Erbario B, Vol. 1 / Plantarum seu stirpium naturalium	311x216	
1550-1553		Erbario B, Vol. 2 / Plantarum seu stirpium naturalium		
1550-1553		Erbario B, Vol. 3 / Plantarum seu stirpium naturalium		
1550-1553		Erbario B, Vol. 4 / Plantarum seu stirpium naturalium		
1551	Luca Ghini (1490-1556)			
1551	Ulisse Aldrovandi (1522-1605)	Erbario Aldrovandi Vol. 001	320x220	
1551		Erbario Aldrovandi Vol. 002	315x220	
1552		Erbario Aldrovandi Vol. 003	320x215	
1552		Erbario Aldrovandi Vol. 004	330x220	
1553		Erbario Aldrovandi Vol. 005	355x240	
1553		Erbario Aldrovandi Vol. 006	360x240	
1553		Erbario Aldrovandi Vol. 007	360x230	
1554		Erbario Aldrovandi Vol. 008	243x240	
1555		Erbario Aldrovandi Vol. 009	345x240	
1557		Erbario Aldrovandi Vol. 010	360x240	
c. 1557-1560		Erbario Aldrovandi Vol. 011	355x240	
1560-1564		Erbario Aldrovandi Vol. 012	350x245	
1565-1568		Erbario Aldrovandi Vol. 013	350x240	
1565-1581		Erbario Aldrovandi Vol. 014	350x235	
1580-1586		Erbario Aldrovandi Vol. 015	350x240	
1552-1593	Felix Platter (1536-1614)	Platter-Herbar: Band 1 / ES 70.1	410x310	
1552-1593		Platter-Herbar: Band 2 / ES 70.1		
1552-1593		Platter-Herbar: Band 3 / ES 70.1		
1552-1593		Platter-Herbar: Band 4 / ES 70.1		
1552-1593		Platter-Herbar: Band 5 / ES 70.1		
1552-1593		Platter-Herbar: Band 6 / ES 70.1		
1552-1593		Platter-Herbar: Band 7 / ES 70.1		
1552-1593		Platter-Herbar: Band 8 / ES 70.1		
1555-1563	Andrea Cesalpino (1519-1603)	Illustratio in Hortum Siccum	450x300	
<1574				
1556-1592	Caspar Ratzenberger (1533-1603)	Vol. 1	Gross Folio	
1556-1592		Vol. 2		
1556-1592		Vol. 3		
1598	Caspar Ratzenberger (1533-1603)	Herbarius Vivus / Codex chartaceus 153	500x200	
1598		Herbarius Vivus / Codex chartaceus 154		
1598		Herbarius Vivus / Codex chartaceus 155		
1598		Herbarius Vivus / Codex chartaceus 156		
1550s?	Joachim Camerarius (1534-1598)			

	Pages	Plants	Later owner(s)	Present location
			Possibly inherited by his son Peter Turner *(c.* 1542-1614)	Unknown
				Unknown
	48	201		Museo di Storia Naturale dell'Università di Firenze (digital images available on request)
				Unknown
		950	Diego Hurtado de Mendoza (1503-1575) / King Philips II of Spain (1527-1598)	El Escorial, San Lorenzo de Escorial
		516		Biblioteca Angelica, Rome
	1347			Biblioteca Angelica, Rome
			Francesco Calzolari (1522-1609)	
	381	4800	Senate of Bologna / France / Bologna Museum	l'Orto Botanico ed Erbario di Bologna, Università di Bologna (digitized)
	379			
	326			
	343			
	218			
	233			
	236			
	245			
	184			
	130			
	172			
	216			
	218			
	286			
	179			
		813	Helene Platter (1683-1761)	Burgerbibliothek, Bern (digitized)
		768	Bishop Alfonso Tornabuoni (* ?1504) / Pandulphi family / Library of the Nencini family	Museo di Storia Naturale dell'Università di Firenze
			Cosimo I (1519-1574), Grand Duke of Tuscany	Unknown
		111	Landgrave of Hessen-Kassel, Moritz (1572-1632)	Naturkundemuseum im Ottoneum, Kassel
		282		
		353		
		983	?Duke Ernst I, 'the Pious' of Saxe-Gotha (1601-1675)	Forschungsbibliothek, Gotha
			Botanical institute of the University of Erlangen	Lost

'"CHRONOLOGICAL" LIST OF HERBARIA KNOWN TO HAVE BEEN MADE IN THE SIXTEENTH CENTURY				
Date	**Maker**	**Title / signature**	**Size (mm)**	
<1557	Gjeble Pederssøn (1490-1556/57)			
1558	Jean Girault (1538?-1608)		329x220	
c. 1558	Attributed to Francesco Petrollini (fl. 1550)	En Tibi Perpetuis Ridentum Floribus Hortum / Codex Vossianus Germanicus in Folio 1 Tom. 1 Pars 2	430x280	
?1560	Gardener of the Ferrara ducal palace?	Erbario Ducale Estense	320x220	
1560-1562	Leonhart Rauwolff (1535-1597)	Erste Kreütterbuech / Codex Vossianus Germanicus in Folio 1 Tom. 1	320x215	
1560-1562		Ander Kreütterbuech / Codex Vossianus Germanicus in Folio 1 Tom. 2	320x215	
1563		Dritte Kreütterbuech / Codex Vossianus Germanicus in Folio 1 Tom. 3	320x215	
1573-1577		Vierte Kreütterbuech / Codex Vossianus Germanicus in Folio 1 Tom. 4	470x350	
1560?	Georg Forster (*c.*1510-1568)	Med. 2 194	340x240	
?1561	Johann Bauhin (1541-1612)			
1562	Pierre Quthe (1519-?)			
1562	Hieronymus Harder (1523-1607)	Anfangsherbar / BSB, Cbm Cat. 61: 399v	330x210x60	
1573-1575	Hieronymus Harder (1523-1607), Ulm period			
		Pal. Lat. 1276	318x230x70	
1574-1576		Kreuterbuch / HS 01196 (was BSB, Cbm Cat. 61: 399v)	Folio	
1576-1594		Kreuterbuch / BSB Cod. Icon. 3	415x265x130	
1592	Hieronymus Harder (1523-1607), Überkingen period	Kreuterbuoch	220x160x60	
1590s			395x295x100	
< 1594-1607		Handherbar	275x215x60	
1594		Kreuterbuoch / Cod. 11129 (Med. 13)	343x220x70	
end date1594		Kreuterbuch / U 6757	340x220x80-90	
end date 1599		Kreuterbuch		
1599		Kreuterbuch	340x210	
1607		Kreuterbiechlin / Ma II 182	200x145x45	
1566	Petrus Cadé		290x200	
>1568	Anonymous			
1570-1577	Francisco Hernandez (1517-1578)			
1571-1575	Joachim Gagelmann (?-1595)	Cod. Guelf. 929 Helmst.	210x155	
3rd quarter 16C	Ferrante Imperato (1525-1621)	Collectio plantarum naturalium	330x200	
1577-1624	Caspar Bauhin (1560-1624)			
1578-1594	Johann Jakob Han (?1565-?1616)	Kreitterbuoch	275x215	
1587	Benedictine monk monastery Monte Cassino?		'Kleinquart'	
1593-1606	Johannes Harder (1564-1606)	Historia plantarum / Cod. Guelf. 11.4 Aug. 2°	320x220	
1595		Historia stirpium	313x197	
> 1594		Historia simplicium / Cod. 11128 HAN MAG	320x 205	
end 16C	Pieter Pauw (1564-1617)			
end 16C	Paul Contant (1562-1629)			
1550-1599	Anonymous	O, II, 150	410x270	
1550-1599	Anonymous	O, II, 170	250x170	
>1596	Anonymous (possibly from Johann or Caspar Bauhins)		310x210	
16C	Anonymous	Index ordinarius simplicium		
16C	Anonymous			

	Pages	Plants	Later owner(s)	Present location
				Unknown
	81	310	Faculty de Lyon, Boissier de Lyon / Antoine de Jussieu (1686-1758)	Musée National d'Histoire Naturelle, Paris (digitized)
		473	Emperor Rudolf II (1552-1612) / Gustav Adolf II of Sweden (1594-1632) / Christina I of Sweden (1626-1689) / Isaac Vossius (1618-1689)	Naturalis biodiversity center, Leiden (digistised)
	146	181		Biblioteca Estense Universitaria, Modena (digitised)
		219	Emperor Rudolf II (1552-1612) / Gustav Adolf II of Sweden (1594-1632) / Christina I of Sweden (1626-1689) / Isaac Vossius (1618-1689)	Naturalis biodiversity center, Leiden (the fourth volume is digitised)
		226		
		266		
		192		
		190	Nuremberg physician Georg Palma (1543-1591)	Nürnberger Stadtbibliothek
			Daniël Loris / Pyrame de Candolle (1566-1626)	Unknown
				Unknown
	123	270 or *c.* 420	Albrecht V (1528-1579), Münchner Hofbibliothek, Teutsch St. 2 No 22 = 2 No 17 / Sold by Albert Figdor in Luzern in 1932, it was bought by Frau Walz-Figdor, Heidelberg	B. Giulini, Heidelberg
			Johann Egolf von Knöringen 1537-1575, bishop of Augsburg 1573-1575	*Harder made 12 herbaria, this herbarium must therefore be one of the extant Harder herbaria in this list*
	138	297	Elector Palatine of the Rhine [?Frederick IV (1574-1610)] / Biblioteca Palatina, Heidelberg	Bibliotheca Apostolica Vaticana, Roma (digitized)
	101	435	Albrecht V (1528-1579), Münchner Hofbibliothek (Teutsch Station 1 No 16) / Joh. Friedrich Geyer, Eisenberg / Staatsrath Back, Altenberg / Königlichen Forstakademie Tharandt	Deutsches Museum, Munich
	351	849 (785)	Herzog von Pfalz-Neuburg [?Philipp Ludwig, Pfalzgraf und Herzog von Pfalz-Neuburg (1547-1614)]; Hofbibliothek Mannheim I 30; Bibliotheka Palatina Mannheim No. VI 2103	Bayerische Staatsbibliothek, Munich
	178	515	Städtischen Museums, Hallein	Haus der Natur, Salzburg
	215	*c.* 700	Owner in 1979 Walter Bruderer, Zurich / Hargray Bruderer, Hilton Head Island (South Carolina, USA), auctioned in London by Sotheby's in 2009	Unknown
		288	Johann Brehe, Überlingen	Städtischen Museum Überlingen
	209	640		Östereichischen Nationalbibliotek, Wien
	204	746 (699)	Georg Hasfurt, Ulm / Johannes Regulus Villiger (1610-1680), Ulm / Johannes Frank (1649-1725), Ulm / Ulmer Stadtbibliothek	Stadtarchiv, Ulm
		718	Heinrich W. Reichart	Naturhistorisches Museum, Wien
	141	506	Landesgerichtsrat Theodor Thanner / Museum Franceso Carolinum	Oberösterreichischen Landesmuseums, Linz
		193	Maria Lynnsin (Maria Lins)	Stadtbibliothek, Lindau
			Margrave of Baden-Durlach Ernst Frederik (1560-1604)	*Harder made 12 herbaria, this herbarium must therefore be one of the extant Harder herbaria in this list*
			Dr. Joan Kern, Innsbruck	*Harder made 12 herbaria, this herbarium must therefore be one of the extant Harder herbaria in this list*
		171	Ischa Cadé / Jan de Vriendt /J. Selden (1584-1654) / M. Hale (1609-1676) / J. Fairhurst / C.K. Ogden (1889-1957) / Los Angeles Biomedical Libraryww	Naturalis biodiversity center, Leiden (digitised)
		214		Herbarium of the Università di Bologna (see Cristofolini et al. 1993: 556) (digitised)
			King Philips II of Spain (1527-1598), El Escorial, San Lorenzo de Escorial	Lost
	90		Duke Julius of Braunschweig-Lüneberg, Prince of Wolfenbüttel (1528-1589)	Herzog August Bibliothek, Wolfenbüttel
		442		Biblioteca Nazionale di Napoli
		3355		Botanisches Institut, Universität Basel (digitised)
		275		Städtisches Museum Überlingen
			Present in the library of the Benediktiner Gymnasium in Meran in 1879, since then disappeared	Unknown
	239			Herzog August Bibliothek, Wolfenbüttel
		588	Jeremias Forstner / Biblioteka Julinska / Put on sale by the antiquarian Helmut Tenner in Heidelberg in 1979 (unsold) /Auctioned by Sotheby's in 1987	Oak Spring Garden Library, Upperville (Virginia, USA)
				Österreichische National Bibliothek
				Unknown
		c. 3000?		Unknown
	70	225	Biblioteca Nazionale Universitaria di Torino (see Camus 1895: 304-305)	Now lost?
	434	c. 600	Biblioteca Nazionale Universitaria di Torino (see Camus 1895: 304-305)	
	88	273		Herbarium of the Università di Bologna (see Cristofolini et al. 1993: 556)
				El Escorial, San Lorenzo de Escorial (see Carriòn 2017: 48)
			Francisco Bordina / Camilo Ferré	

32

AD SPLENIS DOLOREM

Herbę gladiolum maturissime electū & siccatum inpulueremoredatum inuinoleuissime mixto potuidatum miredicimus splenemsicare.



Nascitur locis saxosis & aggeribus.

AD MVLIERES QUEA PARTV LABORANT ET NON PVRGAN TVR.

Herba pastinaca decocta cum eadem aqua ibi decocta est. mittis granapiperis. xxx commisce & da

pastinaca

PART II

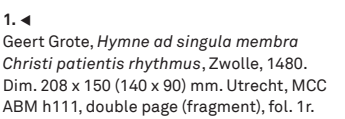
THE USE OF PLANTS IN THE MIDDLE AGES

4

PAINTING WITH PLANTS
THE USE OF VEGETAL PAINTS IN MEDIEVAL MANUSCRIPTS


Alue
meum
saluta
re salue salue ihesu care aiua tue
me aptare vellem vere tu sas qua
re da michi tui copiam. Hec si pre

Micha Leeflang en Annabel Dijkema



1. ◂
Geert Grote, *Hymne ad singula membra Christi patientis rhythmus*, Zwolle, 1480. Dim. 208 x 150 (140 x 90) mm. Utrecht, MCC ABM h111, double page (fragment), fol. 1r.

The historiated initial with the image of St. Bernardus embracing the cross was painted by the Master of Zwolle.

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600.*
Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_CH04

Abstract
For over 500,000 years plants have been used as materials with which to paint. Vegetal colourings were used for the decoration of manuscripts. Many illuminated books have been preserved in collections all over the world, where they are studied in various ways: technical, art-historical, text-historical, etcetera. Thanks to age-old recipe books, technical research such as infrared reflectography and Raman spectroscopy, the execution of historically accurate reconstructions and thorough art historical research it is possible to reveal, step by step, the secrets of the medieval illuminator and painter. In this way we are able to gain even more insight into the manner in which medieval people gave colour to life through the use of flowers and plants.

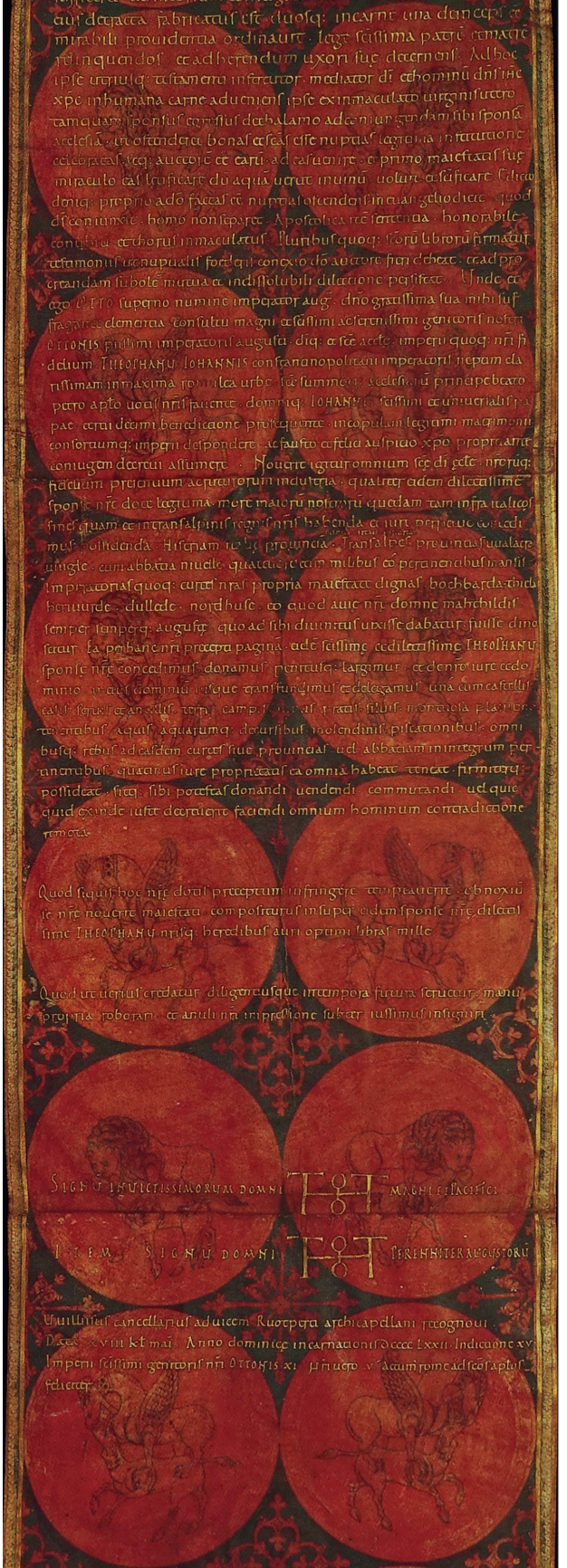
Keywords: vegetal paints, recipe books, painting treatises, Raman spectroscopy, infrared reflectography, technical research

Introduction

Plants have been used as a major source for the making of paints and dyes for over 500,000 years.[1] The first paints produced were often a mixture of coloured earth, or an animal or plant extract combined with a binding agent or glue. In prehistoric times they served to decorate the body and colour the hair. They were also used to paint and dye objects made of various materials: leather, textiles, wood, stone or bone. One of the oldest colouring agents to have been employed is charcoal which comes from burned wood, a vegetable substance. We find its use, often along with red soil, in prehistoric cave and wall paintings. The black that was obtained from charcoaled wood is found in a myriad of varied wall drawings, from hunting scenes to simple decorative designs. In a later phase, the assortment of earth tones would be expanded with plant extracts, such as indigo and woad for blue, weld for yellow and (dyer's) madder for dark red. These pigments are mentioned in texts from old civilizations in Asia – India, China and Japan – as well as ancient Egypt and Greece. In addition to these organic paints made from plants and animals, inorganic pigments were fabricated from minerals: the semi-precious lapis lazuli for blue and malachite for green. Mineral pigments are generally expensive but have the advantage of being relatively impervious to light. They are colourfast in other words, in contrast to plant-based paints, that are less expensive but also less durable as they fade or change colour when exposed to light.

Charcoal was also put to use in the Middle Ages, both in dry and liquid forms. It was applied in manuscripts for the script as well as for the miniatures and margin decorations. The palette of pigments and paints – with the primary colours of blue, red and yellow – remained more or less the same in the Middle Ages. Because of their colourfast quality, inorganic pigments were found preferable for objects that came into frequent contact with light, such as wooden and stone sculptures, or panel and wall paintings. Vegetal, that is to say organic paints were excellent for the decoration of books because the pages would not suffer long exposure to light. Textiles for the common people were generally coloured with organic pigments because colourfastness was not a high priority for this category.[2] In contrast, more expensive clothing, liturgical garments that were worn during religious ceremonies for example, were coloured with rarer products such as the red obtained from insects, such as cochineal, kermes and kerria lacca.

But how do we know which pigments, and in particular which vegetal paints were used in handwritten and illustrated books in the Middle Ages? That is the question we shall try to answer in this chapter. The objects themselves are the primary source for our enquiry. Medieval manuscripts are found in museums, libraries, private collections and those of art dealers. The first step is to examine a manuscript with the naked eye, then to study it under a (stereo-)microscope to make a careful determination of the techniques and materials that were used. This requires a certain amount of background knowledge of course. What artist's materials did painters in the Middle Ages have at their disposal and how did they normally create their works of art? For answers to these questions we turn to old recipe books and painting treatises which have survived from the ninth to sixteenth centuries. They offer fundamental information about applied materials and techniques.[3] More and more frequently nowadays, this information is verified by means of technical research or historical



2.
Marital document of Theophanu and emperor Otto II, Fulda, 972. Dim. 1445 x 395 mm. Wolfenbüttel, SA 6 Urk 11. This document is one of the oldest remaining recipes for the use of madder in the Middle Ages.

reconstructions.[4] In the study of centuries-old miniatures – and also other art objects – traditional recipes for paints are painstakingly reconstructed to allow us a better insight into the original intentions and working methods of the artist. Technical research is essential to determine precisely which pigments and paints were used for a medieval manuscript. In the past it was impossible to analyse pigments without damaging the object, but today there are various technical research methods, that have been developed for the identification of paints that represent no danger to a manuscript.

Ancient references to paints and dyes

Many different remarks found in historical documents tell us of plants that had been used for centuries for painting. Vitruvius, Dioscorides, Pliny, Ovid and even Julius Caesar mention indigo and woad in their journals: indigo was used in antiquity as a pigment for painting and woad for dying cloth. Woad comes from the plant of the same name, also known as dyer's woad or glastum. Its scientific name is *Isatis tinctoria* (ill. on p. 318-319).[5] The Egyptians painted their stones with it. Indigo is one of the oldest known vegetal dyes, procured from sub-tropical and tropical plants of the *Indigofera* family.[6] It has been found on a cloth from the Egyptian city of Thebes (*c.* 3000 BCE) and on linen cloths used for mummies (*c.* 1,580 BCE). Indigo and woad were also put to use for other purposes it would seem. Julius Caesar and Pliny recount that the British rubbed woad on their skin and that the Picts used it for tattoos. Ovid remarks that the Teutons used woad to dye grey hair black. Indigo was costlier than woad, because it had to be imported from India via Baghdad. In the early modern era, in the course of the sixteenth century, the import of the stronger indigo increased and trade in woad came under pressure. An attempt was made to improve its quality by adding two pounds of indigo to every barrel of woad, but eventually indigo took over completely. Indigo is a product that is frequently listed in the bookkeeping of tradesmen and lists of customs tariffs in the late Middle Ages.

The red dye alizarin is also described, albeit summarily, in ancient and medieval texts. Alizarin is obtained from the roots of the madder plant, also called dyer's madder (*Rubia tinctorum*). Pliny is one of the first to write that it is good for use as a dye. Dioscorides describes madder under the name *Eruthrodanon* and recounts that it can be used not only for medicinal purposes, but also for the dye derived from its roots.[7] Madder was found on ancient Egyptian cloth fragments in an excavation of a shop in Pompeii and in pots of dye in the Egyptian

Crocus · Saffran ·



Crocus Complē cū est p̄ Elē ortū lucis rubens oriente Iuuam dū letificat cor & afficit cerebrū fm̄ Rasim dicit natura Hemō nocū cū sicco cito nocet aut vino odorifō Quod gerit sanguinem bonū subtile tenuē tñ cū cicē fīes sus hyeme et Septentrionalibus

Saffran ist warm vnd trúchen im ersten grad Der zam so im oriens wechst ist der best Er macht frolich vnd fiegt dem kalten gehirn Er bringt mirren corrigier in mit kitten saft oder mit starcken wein macht gůet kútil doch scharpf gebúlet fiegt den alten kalten minners seiten

3.
Tacuinum sanitatis, Rhineland/Germany, 1400-1425. Paris, BNF MS lat. 9333, fol. 37v. Saffron picking.

pyramid Hawwarat Al Maqta. Cloth dyed with madder was sold in the seventh century CE in St. Denis, not far from Paris, and Charlemagne even promoted the cultivation of madder in his kingdom in the eighth century.[8] In the centuries that followed there are almost no traces of this red pigment, although it is known to have been used in the tenth century on the marriage certificate of the Byzantine Princess Theophanu and Emperor Otto II of the Holy Roman Empire (ill. 2, p. 99).[9] At the end of the fifteenth century, it was still sporadically used for the illumination of manuscripts, in pure form as well as mixed with other pigments.[10]

The oldest books of paint recipes

Aside from occasional remarks on paints, there were also texts that concentrated exclusively on painting. These were painting treatises and books of paint recipes. The oldest written recipes date from the seventeenth century BCE.[11] Written in cuneiform script, it describes Assyrian glazing techniques. The Assyrian method was probably adopted by the Egyptians and the Greeks. Unfortunately, there are no texts or recipes that have come down to us from them, but it may be assumed that such treatises did once exist. We know this because of Pliny's assertion in his *Naturalis historia*, written in the middle of the first century CE, that there were various books on 'the imitation of precious stones'.[12] These had to do with the preparation of less expensive, possibly vegetal paints; colourings, in other words, that would equal the external characteristics of the expensive mineral paints. The first references to recipe books in Egypt stem from Zosimos of Panopolis, a Greek alchemist who noted in the fourth century during a visit to the temples in Alexandria that there were thousands of writings on diverse chemical topics, among them on the preparation of paints.

Two examples of such texts are the Leyden Papyrus X and the Stockholm Papyrus.[13] Originally, they were bound together in one codex in the Egyptian city of Thebes. In the nineteenth century they were cut out of the codex, after which they found their separate ways into the collections in Leyden and in Stockholm. In all likelihood, the two documents both stem from the same workshop where they were written in Greek in the third century CE. The Leyden Papyrus X contains 111 recipes for the extraction of paints gained from precious metals and stones, and for imitations of them. It explains how to make and dye textiles and how to prepare gold and silver inks. The Stockholm Papyrus consists of 154 recipes or instructions for the dying of textiles, the use of precious stones, the purification of pearls and the imitation of gold and silver. Both the Leyden Papyrus X and the Stockholm Papyrus outline various applications for plant-based materials. A total of 88 plants are named in the two texts.[14] Vinegar is given a prominent place, which is described as a mixture obtained from (grape) wine or apple juice plus bacteria provided by wood. *Alkanna*, a plant genus also known as dyer's alkanet, is frequently mentioned as an ingredient; its roots yield a red colouring product. The colouring agents gained from moss also figure frequently in the recipes. Plants and flowers are often used for their colours. To dye wool a golden colour, the Leyden Papyrus X advises a mixture of safflower blossom and daisies.[15] Indigo and hyacinth are used to imitate mineral colouring products and pomegranate blossom as a purple dye for wool.

Medieval recipe books

After Pliny, it is not until the ninth century that we find recipes for painting materials. The Lucca Manuscript and the *Mappae clavicula* are both compilations of old Assyrian, Greek, Egyptian and Arabic recipe books and show multiple similarities with the Leyden Papyrus X and the Stockholm Papyrus.[16] The Lucca Manuscript details the processing of pigments, all sorts of painting techniques and instructions for working with metal and mosaics. The *Mappae clavicula* consists of approximately 300 recipes with directions for making and handling lacquers, paints, ink types and pigments. It also offers information on gilding, metalworking and various chemical and alchemical processes.[17] The *Mappae clavicula* contains roughly the same material as the Lucca Manuscript, but also provides a number of new recipes.[18]

The *Mappae* opens with various colour recipes because, as the author proclaims at the beginning of his book, 'the first task of a painter is the preparation of his pigments'. In Chapter 192-D of the *Mappae* the writer gives a summary of every imaginable flower and plant found on land or in the sea that can be used for these purposes. He also discusses the characteristics and effects of the plants when used on walls, wood, linen and skins (parchment). There are numerous applications suggested as vegetal materials. Saffron is frequently proposed, in particular as an ingredient for the imitation of gold. Also known as an edible spice, saffron is derived from the saffron crocus (*Crocus sativus*), a bulb plant that belongs to the iris family (*Iridaceae*). Deep blue indigo is also popular. The palette is further filled with colours derived from all kinds of flowers such as irises, hyacinths and roses, but also includes various types of wood, berries, fruits, vegetables, spices and vegetable oils.

The Greek and Arabic recipes slowly found their way throughout Europe. In the twelfth century the texts began to be translated into Latin, making them readily available for European craftsmen who made use of them on a large scale. They are partially the source for the very famous twelfth-century Latin treatise of Theophilus Presbyter, a pseudonym for a Benedict monk.[19] His work, *De diversis artibus* ('On divers


Lectio sancti euangelij
Secundum marcum:
In illo
tempore
recum
bentibz
undecim
discipu
lis apu
ruit illis ihs. et exprobra
uit incredulitatem illor
et duritiam cordis quia
his qui uiderant eum
resurrexisse a mortuis nō

4.
Book of hours, workshop of Simon Bening, Ghent or Bruges, *c.* 1510. Utrecht, MCC ABM h11, fol. 52v. This unfinished book of hours contains coloured initials and marginal decorations, but the miniatures have not been completed. In the void on this page, the evangelist Mark would have been depicted.

arts') is a three-volume text on art materials and techniques. The first volume describes the production and use of drawing and painting materials, concentrating primarily on manuscript illuminations and panel and wall paintings. The second volume deals with the production of stained glass and how it is painted. The third volume outlines various techniques for working with gold and metal.[20] It is believed that the treatise was not solely the work of Theophilus, but rather a compilation of his own work and other existing texts.[21]

In the first book on painting techniques, many different types of materials to be used as binding ingredients for pigments are listed. Theophilus names animal materials – fish glue, egg white and egg yolk – as well as inorganic binding agents such as lime. He also discusses vegetal (organic) variants including linseed oil and organic resins. *De diversis artibus* only recounts how to prepare a few of these: cinnabar, verdigris, ceruse (white lead) and ink. The reason behind this selection is not given, but in all likelihood, it is simply because they were most commonly used. A number of organic pigments are included in Theophilus's palette. Red comes from folium, a juice derived from *heliotropium* or turnsole.[22] When folium is mixed with charcoal and urine it provides a purple or violet colour, blue when lime is added. Green is obtained from mixing sea buckthorn, black currants, leek, cabbage, iris and elderberry blossom juice. If a soft green tint is desired for a miniature, verdigris – an inorganic copper-based pigment – mixed with wine is recommended, or for shadowing, mixed with iris, cabbage or leek juice. Blue is obtained from indigo. Black is gained from charcoaled wood, and black ink from blackthorn. Theophilus offers a number of inorganic options for white, such as ceruse, a mixture of lime white and chalk, or a mixture of chalk and animal glue. The last of these was later used as *gesso*, the undercoat for many panel paintings. Vegetal yellow was procured from dried saffron (ill. 3, p. 114), or irises. Just like the *Mappae clavicula*, Theophilus recommends that saffron be used in manuscripts to imitate gold. If gold or silver is not available, Theophilus writes: '[T]ake tin and apply it to the parchment. Then take saffron mixed with egg white that has stood overnight and apply it on top of the tin to achieve a gold colour.'[23]

Plants are also mentioned with increasing frequency in later, vernacular writings. In the early fifteenth century, Cennino Cennini (*c.* 1370-before 1427) wrote his *Il libro dell'arte*, which would be frequently consulted, studied and cited. He exhorted those who had decided to take up the art of painting that 'anyone who is moved to practise his art out of love and delight elevates himself above anyone else who works from a different motivation'. The author treats almost every type of material and technique related to the art of painting. Not just on parchment, panels or canvas, but also on walls, weaving material, glass and paper. His treatise considers all sorts of applications for ingredients of a vegetal origin. Among them, Cennini describes how to turn charcoal into a drawing tool. Charcoal was, and still is today, a popular material for drawing. Cennini recommends assembling multiple pieces made from dry sticks of willow, the length of the palm of your hand. The willow sticks should be smoothed and placed in a pan in the oven until they are blackened.[24] Another of his suggestions is the use of Arabic gum as a binding agent. Gum arabic (*gummi arabicum*) is acquired from the acacia tree, that grows in an area stretching from western Africa to the Arab peninsula.[25] If the bark of the tree is split, it yields a resin-like gum. Gum arabic is used in particular in combination with glue tempera, often mixed with a bit of sugar or honey. Dragon's blood, a dark red resinous sap from the bark of an east-Asian palm tree was used to improve the colour of gold and as imitation gold, but according to Cennini its results are not spectacular.[26]

Just like Theophilus in his *De diversis artibus* as well as older treatises, Cennini finds saffron to be the perfect material for imitating gold.[27] For the colour yellow, Cennini proposes saffron once again, but also arzica. It loses its colour when exposed to light however, which is also the case for saffron, and is therefore not a good pigment for wall paintings or panels. Arzica was made primarily from the unripe berry or bark of the purging buckthorn which was dried and ground. Both were frequently used by miniaturists according to Cellini.

Just like Theophilus, Cennini is enthusiastic about blue indigo. He advises making this pigment from the freshly harvested plant, which is placed in large vats to prevent fermentation. The sediment is sieved and pressed and then dried into cakes. Later it is ground finely into pigment. Just like pigment, indigo can be used for all sorts of applications, to imitate expensive mineral pigments, such as azurite or ultramarine for example, both of which are made from the semi-precious stone lapis lazuli.

In addition to recipes, the writers often discuss the making of a book itself. Thus, after having considered the above sources, we too now turn to the finished product for examination. What are the basic components of a medieval hand-written and illuminated book? Which of those elements were made of plants and how can we determine that?

Constructing a manuscript

The production of a medieval illuminated manuscript was a joint project requiring the skills of parchment makers, copyists (writers), illuminators (miniaturists) and bookbinders.[28] Before parchment (and later paper) was used, texts were writ-









5a.
Geert Grote, *Hymne [...]*. Utrecht, MCC ABM h111. Detail of the soldiers in the historiated initial on the side of the crucifixion.

5b.
IR reflectographic image of the same detail. The soldier with upturned head carries a banner, an element not present in the painted image.

6a.
Geert Grote, *Hymne [...]*. Utrecht, MCC ABM h111. Detail of the angel in the right upper corner of the margin in natural light.

6b.
IR reflectographic image of the same detail. On the left of the two painted sticks in the angel's left hand, a third is visible in the underlying drawing. There was an additional stick in the angel's right hand in that same drawing, that was also omitted in the painting.

ten on papyrus.[29] This precursor to paper was made from the stalks of the papyrus plant, *Cyperus papyrus*. It was used in antiquity from Egyptian civilization through the periods of Greek and Roman dominance. The Romans introduced it to northern Europe. In the first century CE, parchment, made from animal skins came to be used as an alternative material for writing, even though it was much more expensive. After the fall of the western Roman Empire and the Arab conquest of Egypt, the importation of papyrus became almost impossible, with the result that people in northern Europe began the shift to locally produced parchment.

Copyists and illuminators had many plant-based pigments at their disposal. In general, copyists in the Middle Ages used iron gall ink for the writing of their texts.[30] Extremely good for use on parchment, this ink is made from gall nuts, that form on oak leaves.[31] They come into being after the gall wasp (*Cynips folii*) lays its egg on the leaf, causing the leaf to react and produce a swelling. The eggs take advantage of this for their development as they are fed by the sap supplied by the leaf's nerves. Gall contains high levels of tannic acids (gallotannins). If these tannins are mixed with an iron compound, a black solution results – gall nut or iron gall ink. It is highly colourfast in character and difficult to remove.

After the texts were copied in ink by the writer, the spaces that had been left open were filled by an illuminator. Given that most manuscripts were made up of various combined texts or chapters, these different components were identified by putting in paragraph symbols, capital letters and titles in red. This is called rubrication, derived from the Latin word for red, *ruber*, and was a technique intended to simplify the reading of a text. The substance used for this purpose was red lead, also known as lead oxide, which is extremely poisonous, of course, given that it is a lead product. Apart from red, other colours were also used. Initials in English manuscripts from the tenth and eleventh centuries are mostly in red and green, and in red and blue in gothic manuscripts (thirteenth and fourteenth centuries). Inorganic verdigris was used a great deal for green initials. Both inorganic and organic pigments were available for the colour blue. The inorganic pigments were made from ultramarine and azurite, as we stated above, and the organic pigments were derived from indigo and woad.

In addition to coloured initials, penwork initials were also made. These were simple, linear decorations, primarily in green, red or blue, and sometimes in combinations of these colours. A step higher in layout sophistication are the initials that were decorated with plant, animal or geometric motifs. The most impressive of initials are the historiated initials, as they are called, inside of which an identifiable figure or scene is depicted, a 'story'.[32] In most cases, both the decorated and historiated initials were painted by a miniaturist. Space for the miniatures (ill. 4, p. 107) was left by the copyist during his writing and rubrication. Space for full-page miniatures could be made by pasting in loose sheets, or they could simply be added later.

The first step for the paintings or decorations in manuscripts was usually the underlying sketch. If the drawing was not made with a dry medium such as charcoal, but with a liquid medium (see below), the pigments could be thickened with a vegetal binding agent. Egyptians used vegetal gum arabic, and from the beginning of the fifteenth century artists in the Netherlands, and most parts of western Europe, used it for illuminations as well, either in combination with egg white or by itself.[33] The advantage of gum arabic as a binding agent is that it provides a better adhering quality for the paint and gives the colours, which are of themselves dull, gloss and depth. That is why Cennini advised mixing all colours that were to be applied to parchment with gum arabic.[34] If gum arabic was not available, other indigenous gums could be used, such as, for example, the gum that can be tapped from the plum tree.

How can we determine which vegetal materials, pigments and paints were employed in medieval manuscripts and to what end? That is not possible with the naked eye.[35] Nowadays, scientific examination offers various possibilities. The research we will describe below was carried out on miniatures and decorations found in the collection of Museum Catharijneconvent in Utrecht.

7.
Rhymed hours of the sorrows of Maria, penitential psalms and other hours, Utrecht, 1330-1350.
Dim. 85 x 65 (47 x 35) mm. Utrecht, MCC BMH Warm h92A12, fol. 131v. The poisoned cup of John the Evangelist was not painted and the image merely shows the flowing outlines of the cup.

Research with infrared reflectography

More and more frequently, the technology available from infrared reflectography (IRR) is used in the study of manuscripts.[36] Until recently, this method was primarily applied to art works as a means to penetrate the layers of paint optically so as to see the original intention of the artist – his underlying sketch. But IRR can also tell us about any changes that were made during the painting process. Certain components that show up with an IRR examination are helpful in identifying the exact materials that were used.

We take one example from a medieval Dutch manuscript. In the fourteenth century, the Dutch cleric and educator Geert Grote (1340-1384) set the passion poem of St. Bernard to music. An IRR examination of the bifolium (double sheet) on which the hymn was written has been carried out (ABM h111), providing insight not only into the under drawing, but also into the type of ink that was used for the writing (ill. 1, p. 111).[37] IRR requires carbon, and since iron gall ink contains no carbon, it will not show up on an IRR image. That is the case for the handwritten text of this bifolium whose IRR image is almost completely transparent, indicating that the ink must indeed have been iron gall. The lines on which the text was to be written were engraved into the parchment and those are visible in the image. Lines were also placed to indicate where marginal decorations would be painted for the finished page. This was done with a material that contained carbon because the outer contours are clearly visible with IRR. The margin decoration itself, as well as the historiated initial with the crucifixion are again sketched with a material containing carbon, most likely charcoal. The crucified Christ is portrayed in the centre of the initial, surrounded by the associated figures. St. Bernard kneels under the cross, clasping Christ's feet. The margins are filled with depictions of leaves and fruit. The outer corners portray angels and the Instruments of the Passion.



The under drawing is difficult to make out due to the lineal and crosshatch technique used in the painting. The artist used fine, parallel brush strokes to achieve shadow effects in the folds of the clothing. That and the extremely small format (the initial measures only 97 × 82 mm) make the under drawing hard to see. The lines of both the underlying sketch and the painting are so fine that it is sometimes almost impossible to tell whether a line is underneath or on top of the paint layers. In some cases, on the other hand, we do find elements in the underlying sketch that were not carried out in paint. Those are easy to discern. One example of this is found in the soldier who is looking up to the right of the cross. In the drawing underneath he holds a banner that flutters to the right. In the finished painting this is not included. (ills. 5a, 5b, p. 118).

Similarly, the objects held by the angel in the upper right-hand corner of the margin are different in the final picture than in the drawing (ills. 6a, 6b, p. 118). In the painting, the angel is depicted holding three nails of the cross in its right hand. In the under drawing, a stick was sketched in as an almost vertical line from the hand downward. A change was also made for the other hand. In the completed painting, the angel holds a lance and a stick with a sponge at its end. In the under drawing, a vertical line is drawn downwards to the left of these painted objects, just as for the right-hand. This detail was once again left out in the painting.

The sketch on this page was perhaps made following the technique we mentioned above with a carefully sharpened stick of charcoal. Another method was to grind charcoal into powder and then mix it with water or a binding agent. A combination of dry and moist charcoal was also possible. Cennini advised making a sketch first with a dry material and then accentuating it with a brush and a liquid medium. That seems to have been done in the manuscript produced in Utrecht

8a.
Rhymed hours etc., Utrecht, MCC BMH Warm h92A12, fol. 21r. Historiated initial D with Mary and child and the patroness in the lower margin.

8b.
Rhymed hours etc., Utrecht, MCC BMH Warm h92A12, fol. 21r. IR reflectographic image of Mary and child.

8c.
Rhymed hours etc., Utrecht, MCC BMH Warm h92A12, fol. 21r. IR reflectographic image of the patroness.

around 1350, the *Book of Hours of the Sorrows of Mary, Penitential Psalms and Other Hours* (BMH Warm h92A12). In the illustration of John the Evangelist in this book, the poison cup is not painted in, only shown in fluid contour lines (ill. 7, p. 120). The underlying sketch of Mary and Child in the historiated initial D and, below, the image of the patron of the book in the margin seem to have been made, judging from its grainy structure, with a dry material (ills. 8a, 8b, 8c, p. 121).[38] The contours of the clothing of the figures were drawn in detail in the sketch, but not carefully followed in the painting. Mary's waist was much smaller in the sketch and the contours of the folds over the knee were continuous curves, unlike those in the final painting.



Raman spectroscopy
It is possible to analyse the composition of the paint used in medieval paintings and polychrome sculptures by taking paint samples. This technique involves removing a small piece of paint, sometimes just a particle the size of a pin





9.
Book of hours and prayer book, Master of Catherine of Cleves, Utrecht, *c.* 1440-1450. Dim. 166 x 108 (90 x 70) mm. Utrecht, MCC ABM h15, fol. 76r. Jesus as Man of Sorrows.

prick. This paint sample is then embedded in resin, polished and examined under a microscope. It is also possible to analyse the paint sample by chemical means. In the case of medieval miniatures, which are very small, it is not the practice to take paint samples. Instead, to learn more about the pigments used in miniatures, one of the methods one turns to is Raman spectroscopy.[39] Raman spectroscopy uses a green or red laser beam that does not damage the original object. The peaks that show up when light is applied to the surface can be measured with a spectrometer. These measurements are then transformed into a graph. By comparing the results with the values of known paint compounds, it is possible to determine the composition of an unknown substance. Importantly, Raman spectroscopy can only reveal the presence of inorganic pigments. These include white lead, lead tin yellow, red lead (red [II, IV] oxide), vermillion, azurite and ultramarine. It will provide no information about organic paints, such as those derived from plants. This in itself is an important indicator. If Raman research cannot identify the composition of a certain tint, that may suggest that the colour was created by a plant-based pigment.

A remarkable revelation obtained by research with Raman spectroscopy is that more costly pigments were used for the representations of liturgical elements in a picture, as opposed to those of a more mundane nature. In the scene of the *Temple of Solomon* found in the Dutch Breviary of Arnold van Egmond, fol. 381r, vermillion was used for the altar frontal (*antependium*) and a less expensive red lead for the decorations in the margin.[40] Vermillion is made from mercuric sulphide and is found in the mineral cinnabar. We find the name 'cinnabar', or alternatively 'cinnebar' in the work of Theophrastus, one of the first botanists, as early as 315 BCE. The mineral is not readily available, which made vermillion extremely costly in the Middle Ages, even more expensive than gold. Red lead was considerably less expensive and was frequently used in miniature paintings, in Byzantine and Persian manuscripts for example, but also in European documents. Red lead was used for rubrication, as we noted above, but also for margin decorations, penwork and painted miniatures.

A similar example of the use of both costly and inexpensive pigments in the same painting is found in the historiated initial of Christ as Man of Sorrows in the Utrecht Book of Hours and Prayers (ABM h15), which was decorated by the Master of Catharine of Cleves (ill. 9, p. 122). The red of the bleeding wound of Christ is painted with costly vermillion, whereas the red used for leaves and flowers in the margins is red lead. Needless to say, the latter were of much less importance. An illuminator who was in the circle of the Master of Catherine of Cleves also used two types of blue for another book of hours (BMH h165). The expensive inorganic ultramarine is applied for the flower decoration of an initial (the letter H) while the blue of the plant decorations in the margin cannot be identified but is most likely woad or indigo, which have the same chemical composition and cannot be determined by chemical analysis nor by the research with Raman spectroscopy (ill. 10, p. 123).

Of all of the colours used in the Utrecht manuscript (ABM h15) – yellow, green, blue, red, pink, white, black and gold – the following pigments were identified by Raman spectroscopy: yellow tin lead, lead white, red lead (red [II, IV] oxide), vermillion, ultramarine and realgar (ruby sulphur) for red. A number of colours cannot be identified. The pigment used for Mary's pink dress in the full-page miniature of The Visit of Mary to Elizabeth at the beginning of the Mary Hours on fol. 38v, for example, cannot be determined by Raman spectrosco-

10.
Book of hours and prayer book, circle of the Master of Catherine of Cleves, Utrecht, *c.* 1440-1450.
Dim. 140 x 100 (87 x 53) mm. Utrecht, MCC BMH h165, fol. 56r. Initial H with plant decoration in the margin.

py (ill. 11, p. 125). Perhaps the miniaturist made use of brazil, a pigment that is derived from the wood of the Brazil tree (*Caesalpinia echinata* or *Caesalpinia brasiliensis*). Brazil wood is orange in colour, but changes to dark red when exposed to light. Cennini describes the use of brazil in his section on 'colours to be used on parchment'.[41] After boiling with lye and alunite, brazil can be ground into a powder once it has cooled and mixed with quicklime that, according to Cennini, results in 'a very tender pink colour'. On fol. 156r of the manuscript, pink is a mixed colour: the pink pistil of the flower in the decorated initial is made from lead white and vermillion.

The colour used for Mary's undulating hair in the miniature of the Visitation to Elizabeth was made of lead tin yellow, but the yellow of the sloping hill in the background and that of the grass in the foreground cannot be identified. Was it perhaps one of the natural yellow colouring agents described by Cennini, saffron or arzica? Arzica was frequently used in manuscripts for yellow. Mixing saffron with verdigris and a bit of glue produces a perfect green tint. Surprisingly, the green used for the grass between Mary and Elizabeth cannot be identified by Raman spectroscopy. Elsewhere in the manuscript, in the margin of fol. 156r, a green colour is found for plant decorations that is the result of mixing ultramarine with an unidentified pigment. Here again it could be saffron or arzica, but we cannot be sure.

Neither the blue used for the light blue sky nor the blue of Mary's cloak in the miniature of the Visitation can be determined. No ultramarine was used here as was the case elsewhere in the manuscript.[42] Ultramarine is made with a mineral (lazurite), that would be identifiable with Raman spectography. The miniaturist used a different pigment for the miniature of Mary and Elizabeth, most likely indigo or woad. Given that indigo was also expensive, the artist may have chosen woad.

As we have shown, the identification of organic pigments is difficult, in contrast to the identification of inorganic pigments. What options do we have to arrive at identification?

Painting with plant-based colours

The reliability and applicability of the recipe books and painting treatises, which are frequently centuries old, is sometimes called into doubt. Still, these documents offer useful indicators for further research into organic pigments. Cennini introduces his treatise with the following words: 'Theoretical knowledge is the most valuable. Next comes practice that requires the combination of a theory and a skilled hand. This is the practice that is known as painting.' One option in determining what materials were used in the Middle Ages, is to follow the wisdom of Cennini and to try to reproduce that theory and skilled application. It then becomes a historical reconstruction (ill. 12, p. 124).[43]

When reconstructing a work of art, the aim is to reproduce the visual result as accurately as possible, but also to follow the original working method. In combination with technical research, reconstructions can offer insight into the characteristics of the materials used as well as the intentions of the artist. By working with the materials and getting a feel of how the tempera spreads, for example, by experiencing how specific paints and binding agents perform as you work with them, you can build up an accurate idea of the working methods of the medieval illuminator and painter. Nonetheless, the identification of pigments and techniques on the basis of historical reconstructions and visual analysis is difficult. Depending on the production process, some pigments can vary enormously in colour. The aquamarine colour of verdigris, for

12.
Historical reconstruction (several phases) after Utrecht, MCC ABM h111, see ills. 1, 5a. 5b. Created by Annabel Dijkema, 2012.

example, is greatly influenced by the type of vinegar with which it is mixed. The colours obtained from vegetal pigments are dependent on the location and conditions under which the plant grew and when it was harvested. On the other hand, completely different pigments made from differing recipes can produce the same visual result. The type of binding agent, the manner of preparation or application, the amount and type of medium and the mixture of pigments all have an influence on the ultimate appearance. In addition, we must not forget the ravages of time and their effect on the original colours of the miniatures. After centuries of time, the colours we now look at are not always the same as they were when they were applied. Despite being relatively protected in a book, some colours mutate or fade as a result of light or through a slow chemical process.[44] These are all factors that researchers, including art historians, restorers and artists, must consider when they try to understand medieval materials and techniques.[45]



11.
Book of hours and prayer book, Utrecht, MCC ABM h15, fol. 38v. Actual size, added miniature with the Visitation.

Conclusion
For years plants have been used as materials with which to paint. Vegetal colourings were used for the decoration of manuscripts because their low colourfast quality was not a problem given the limited exposure to light. Many illuminated manuscripts have been preserved in collections all over the world, where they are studied intensively. Thanks to age-old recipe books, technical research, the execution of historically accurate reconstructions and thorough art historical research it is possible to reveal, step by step, the secrets of the medieval illuminator and painter. In this way we are able to gain even more insight into the manner in which medieval people gave colour to life, also through the use of flowers and plants.







NOTES

[1] M. Rotgans, *Verf, 500.000 jaar verf en schilderkunst.* Warnsveld 2005, pp. 11-16; D. Cardon, *Natural Dyes: Sources, Tradition, Technology and Science.* [Translation from the French, *Le monde des teintures naturelles* Paris 2003]. London 2007.
[2] A. Serrano Garcia, 'De luxe van kleur: kostbare kleurstoffen voor exclusieve kledij', in: *Catharijne: magazine van Museum Catharijneconvent Utrecht* 33:1 (2015), pp.13-15.
[3] For example, the recipe book *De coloribus faciendis* ('On making colours') by Petrus de S. Audemar or Pieter of St. Omaars from *c.* 1350. But also, painters' treatises, including Theophilus' *Schedula diversarum artium* ('List of divers arts'), also known as *De diversis artibus* ('On divers arts') from *c.* 1100-1120, and Cennino Cennini's *Il libro dell'arte* ('The Craftsman's Handbook'), *c.* 1400. For publications on medieval treatises, see for example M. Clarke, *The Art of All Colours: Mediaeval Recipe Books for Painters and Illuminators.* London 2001, and M. Gullick, 'A Bibliography of Medieval Painting Treatises', in: L.L. Brownrigg (ed.), *Making the Medieval Book: Techniques and Production. Proceedings of the Fourth Conference of the Seminar in the History of the Book to 1500, Oxford, July 1992.* Oxford 1995, pp. 241-244.
[4] C. Porter, 'You Can't Tell a Pigment by its Colour', in: L.L. Brownrigg, op.cit (n. 3), pp. 111-116.
[5] Rotgans, op. cit. (n. 1), p. 128.
[6] Rotgans, op. cit. (n. 1), pp. 127-128.
[7] Pliny, *Naturalis historia,* Book 19 ch. 17. See *The Natural History. Pliny the Elder.* transl. J. Bostock, H.T. Riley. London, 1855. (online: http://www.perseus.tufts.edu/hopper/text?doc=Perseus:text:1999.02.0137); Dioscorides, *Materia medica,* III.160. See *De materia medica,* transl. Lily Y. Beck. Hildesheim 2005.
[8] For a survey of the applications of dyer's madder throughout history, see R. Chenciner, *Madder Red: A History of Luxury and Trade.* Richmond 2000. Charlemagne referred to dyer's madder in his *Capitulare de villis.*
[9] The use of dyer's madder in the marriage certificate of Theophanu is described in: D. Köcher, *Einfluss von Rohmaterial und Herstellung natürlicher Krapplacke auf Farbigkeit und Lichtechtheit.* Dresden 2006; H. Goetting & H. Kühn, 'Die sogenannte Heiratsurkunde der Kaiserin Theophanu, ihre Untersuchung und Konservierung', in: *Archivalische Zeitschrift* 64 (1968), pp. 11-24.
[10] H. Schweppe, 'Indigo and Woad' and H. Schweppe & J. Winter, 'Madder and Alizarin', in: E. West Fitzhugh (ed.), *Artists' Pigments, A Handbook of their History and Characteristics,* vol. 3. Washington 1997, pp. 82-83 and p. 111, respectively.
[11] Clarke, op. cit. (n. 3), p. 3.
[12] *Naturalis historia,* Book 37 ch. 75. Pliny speaks about the use of minerals in art in Book 33 and of gems in Book 37.
[13] See for example O. Lagercrantz, *Papyrus Graecus Holmiensis: Recepte* für Silber, Steine und *Purpur.* Uppsala 2001, pp. 50-53. The Leyden Papyrus X as it is called (X is the catalogue number given to the papyrus in the publication *Papyri Graeci* by the former RMO director Conrad Leemans in 1885) is found in the collection of the Rijksmuseum van Oudheden in Leiden (modern inv. no. AMS 66, former inv. no. I 397). The museum bought the Leyden Papyrus X in 1828 from the collection of Giovanni d'Anastasi, consul-general of Sweden in Egypt. The Stockholm Papyrus is in the collection of the Victoria Museum in Upsala, Sweden. For an English translation, see: W.B. Jensen (ed.), *The Leyden and Stockholm Papyri,* Greco-Egyptian *Chemical Documents from the Early 4th Century* AD. Based on English translation by Earle Radcliffe Caley, Cincinnati 2008.
[14] Jensen, op. cit. (n. 13), p. 11. See pp. 94-95 for a survey of all 88 plants.
[15] Jensen, op. cit. (n. 13), p. 77 (recipe 118).
[16] Clarke, op. cit. (n. 3), pp. 9-10. The Lucca Manuscript is housed in the Biblioteca Capitolare Filiniana in Lucca (MS 490); there are various editions of the *Mappae clavicula,* one of which is a ninth-century variant, now in the Bibliothèque Humaniste, Sélestat (MS 17).
[17] C.S. Smith and J.G. Hawthorne (eds.), *Mappae clavicula: A Little Key to the World of Medieval Techniques.* Philadelphia 1974.
[18] The *Mappae clavicula* was written in the area north of the Alps, in contrast to the Lucca Manuscript that was probably made in Italy. The oldest version of the *Mappae* dates from the ninth century; there is also one from the tenth century and a more extensive version from the twelfth century. For descriptions, see: Smith & Hawthorne, op. cit. (n. 17), p. 4.
[19] Theophilus is also sometimes identified as Roger of Helmarshausen. For a discussion on this question, see Smith & Hawthorne, op. cit. (n. 17), p. xv-xvi. The two oldest versions of the manuscript date from the twelfth century and are found in Vienna (Österreichische National Bibliothek, Codex 2527) and in Wolfenbüttel (Herzog-August-Bibliothek, 4373 pf Cod. Guelf. Gud. Lat. 69 2°). For other editions, see again: Smith & Hawthorne, op. cit. (n. 17), p. xvii-xviii.
[20] For an English translation with introduction and notes: Theophilus, *On Divers Arts, The Foremost Medieval Treatise on Painting, Glassmaking and Metalwork.* J.G. Hawthorne & C.S. Smith (transl.), Toronto 1963.
[21] Report of the scholarly meeting *Around Theophilus: An Expert Meeting towards new Standards in Theophilus Scholarship.* 14.01.2010-15.01.2010, Wolfenbüttel, in: H-Soz-u-Kult, 16.04.2010, http://hsozkult.geschichte.hu-berlin.de/tagungsberichte/id=3068.
[22] Folium or *Chrozophora tinctoria is* called *turnsole* in English.
[23] Theophilus, op. cit. (n. 20), chapter 30.
[24] C. Cennini, *Il libro dell'arte,* chapter xxxiii. A recent English translation was published in 2015 (L. Broecke (ed.), Cennino Cennini's *Libro dell'Arte.* London 2015). The earliest known copy of *Il libro dell 'arte* dates from 1437and is housed in the Biblioteca Medicea Laurenziana in Florence (MS 23).
[25] Cennini, op. cit. (n. 24), Chapter xxxiii.
[26] Cennini, op. cit. (n. 24), Chapter xliii.
[27] Cennini, op. cit. (n. 24), Chapter xlviiii.
[28] M. Lawson, 'De *Belles Heures* van Hertog Jean de Berry. Materialen en Technieken van de Gebroeders Van Limburg', in: R. Dückers & P. Roelofs (eds.), *De Gebroeders Van Limburg, Nijmeegse meesters aan het Franse Hof, 1400-1416.* [Exhib. cat. Museum Het Valkhof Nijmegen, Nijmegen]. Nijmegen 2005, p. 150; A.M.W. As-Vijvers, 'Over schrapen, schrijven, verluchten en binden: het maken van boeken in de Middeleeuwen', in: M. Leeflang & K. van Schooten (eds.), *Beeldschone boeken: de Middeleeuwen in goud en inkt.* [Exhib. cat. Museum Catharijneconvent Utrecht]. Zwolle 2009, pp. 46-57.
[29] R. Clemens & T. Graham, *Introduction to Manuscript Studies.* Ithaca/ London 2007, p. 3.
[30] Clemens & Graham, op. cit. (n. 29), p. 19.
[31] 'Het InkCor Project', see: www.teylersmuseum.eu/pdf/1248012301_InkCor_Project.pdf.
[32] On the hierarchy of initials, see the chapter by Van Bergen, chapter 12 in this book.
[33] Lawson, op. cit. (n. 28), p. 158.
[34] Cennini, op. cit. (n. 24), Chapter clviiii.
[35] Porter, op. cit. (n. 4), pp. 111-116.
[36] The first examination of miniatures with IRR was carried out in 1987. See: J.R.J. van Asperen de Boer & M.H. Butler, 'The Examination of the Milan-Turin Hours with Reflectography: A Preliminary Report', in: R. Van Schoute & H. Verougstraete-Marcq (eds.), *Le dessin sous-jacent dans la peinture Colloque VII, 17-19 septembre 1987.* Louvain 1989, pp. 71-76.
[37] On 16 July 2008, J.R.J. van Asperen de Boer, M. Wolters and M. Leeflang examined the page by means of IRR using the equipment of the Netherlands Institute for Art History in The Hague. A second IRR examination took place on 29 December 2009 using the Osiris of the Rijksmuseum in Amsterdam (present: Arie Wallert, Margreet Wolters, Micha Leeflang). For differences between underdrawings and paint layers see also M. Leeflang, 'Onderzoek naar de ondertekening van miniatures', in: M. Leeflang & K. van Schooten (eds.), Beeldschone boeken: de Middeleeuwen in goud en inkt. [Exhib. cat. Museum Catharijneconvent Utrecht]. Zwolle 2009, pp. 58-59.
[38] BMH Warm h92A12 was examined by C. Chavannes-Mazel, A. Taatgen and M. Leeflang in 2012 in Museum Catharijneconvent using the Osiris camera of the ABC Foundation and the University of Amsterdam.
[39] M. Leeflang, 'Onder de loep genomen: middeleeuwe manuscripten uit Utrecht', in: Catharijne: magazine van Museum Catharijneconvent Utrecht 23:3 (2009), p. 22 ; A. Deneckere, M. Leeflang, M. Bloem, C.A. Chavannes-Mazel, B. Vekemans, L. Vincze, P. Vandenabeele & L. Moens, 'The Use of Mobile Raman Spectroscopy to Compare Three Full-page Miniatures from the

Breviary of Arnold of Egmond', in: Spectrochimica Acta, Part A: Molecular and Biomolecular Spectroscopy 83 (2011), pp. 194-199.

[40] Deneckere et al., op. cit. (n. 39), p. 198; for further technical research (and in particular infrared reflectrographic research) on a number of miniatures in the Egmond Breviarium see M. Bloem, 'New Light on Three Miniatures from the Egmond Breviary', in: Oud Holland: Quarterly for Dutch Art History 125:2-3 (2012), pp. 69-89.

[41] Cennini, op. cit. (n. 24), Chapter clxi.

[42] Ultramarine was used in the flower decoration and the initials as well as a part of the green marginal decoration on fol. 56r for which the costly ultramarine was perhaps mixed with an organic pigment.

[43] See for example: L. Stofferis & A. Dijkema, 'Het belang van reconstructies', in: Catharijne: magazine van Museum Catharijneconvent Utrecht 30:2 (2012), pp. 12-13.

[44] Porter, op. cit. (n. 4), p. 113.

[45] Students in the restoration courses of the Stichting Restauratie Atelier Limburg (SRAL) in Maastricht and the University of Amsterdam (Conservation and Restoration of Cultural Heritage programme), at the Arts and Crafts Academy (Rosmalen and Nijmegen) undertake practical research including carrying out historical reconstructions with the aim of gaining as much insight as possible into historical painting materials and techniques. The Rijksdienst voor Cultureel Erfgoed (Government Office for Cultural Heritage) is working at the moment on an international programme to develop methods to identify organic materials in artworks and other items of cultural heritage. On this topic, see: www.organic-colorants.org.

ABOUT THE AUTHORS

Micha Leeflang (1975) received her doctoral degree from the University of Groningen in 2007. Her dissertation was based on technical art-historical research on the painter Joos van Cleve. In 2015 she published the findings of her dissertation in the book *Joos van Cleve: a sixteenth-century Antwerp artist and his workshop*. Since 2007, she has worked as curator of medieval art at the Catharijneconvent Museum in Utrecht where she is responsible for the manuscript collection, fifteenth- and sixteenth-century paintings, medieval sculpture and vestments.

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5

NAMING NAMES
PLANTS IN THE AGE OF CHARLEMAGNE

Claudine A. Chavannes-Mazel en
Gerda van Uffelen

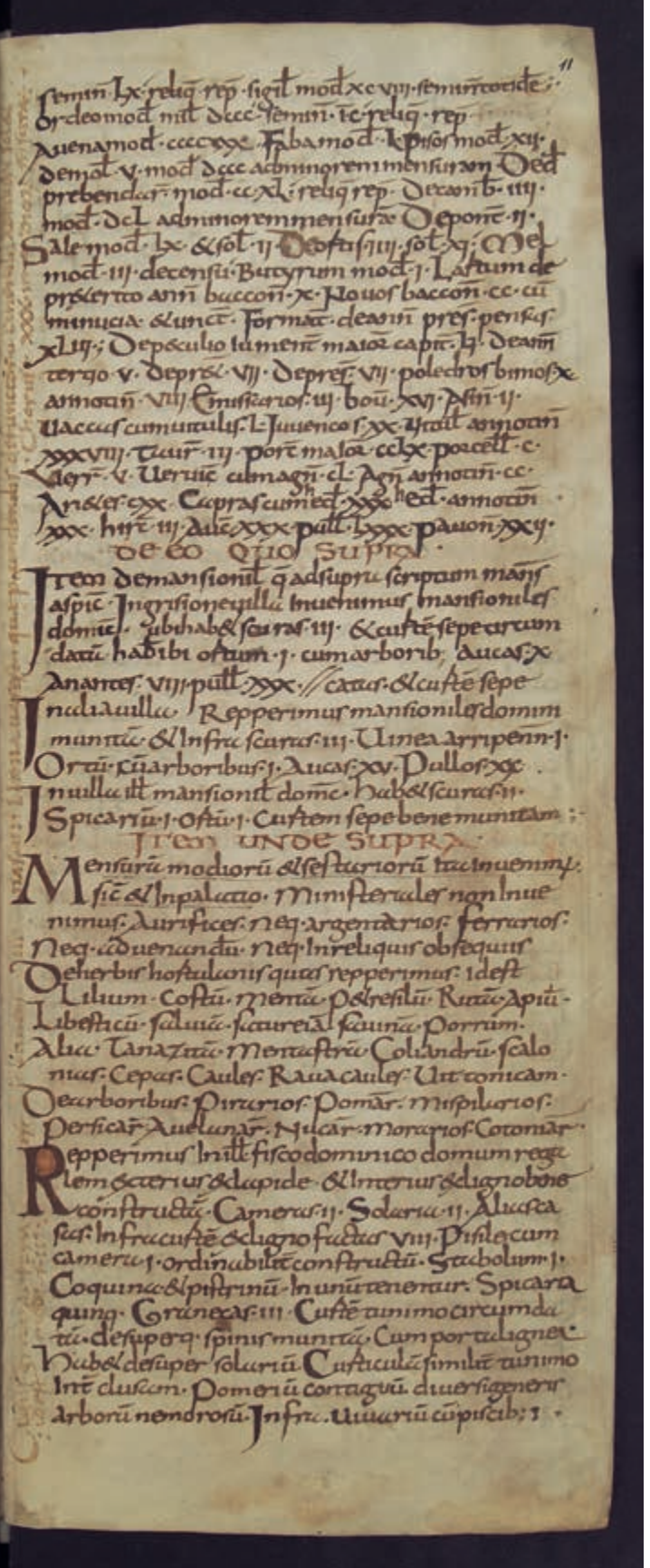
Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600.* Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_CH05

Abstract
Which garden plants grew in western Europe a thousand years ago and what names were given to them? By mere chance, a number of written sources from about the time of Charlemagne have survived in a small ninth century manuscript (Wolfenbüttel, HAB Cod.Guelf. 254). One is an ordinance, called a *Capitulare de villis*, which ends with a list of approximately eighty names of preferred plants and trees. Other pages contain inventories of the gardens and grounds of Asnapium and Treola. A second valuable source is the renowned plan of the monastery of St. Gall with its medicinal garden, vegetable garden and orchard cum cemetery, accompanied by the names of the plants and trees found in these plots. Lastly, there is the poem of Wahlafrid Strabo, *Hortulus* (842), in which he praises the 24 plants found in his monastic garden.

Keywords: plant names of Asnapium, Treola, Capitulare de villis, St Gall, Wahlafrid Hortulus

Introduction[1]

As we have remarked in earlier chapters, the emphasis in the works of late antiquity such as those of Dioscorides and Apuleius Platonicus was on the names of plants and their uses. Their external appearance was assumed to be known. The medieval Latin manuscripts of Dioscorides's *De materia medica* were rarely illustrated. The tenth-century manuscript, which is now kept in Munich, is the only fully illustrated Latin copy dating from before 1500 (ill. 6, p. 20). The plant descriptions in Dioscorides's encyclopaedia and the Apuleius herbarium both begin with a long list of names: here is what the Greeks call the plant and what others (*alii*) call it and still others (*alii*) named it. (Appendix 1 ills. 1 and 2, pp. 261-262). Providing the names of a plant was apparently more important than depicting it. Long before the Common Era, people gave names to plants in



1. ◂
Anthology of astronomical, computistic and physics texts copied in the bishopric of Salzburg in 818 after a Roman model. Dim. 315 x 240 mm. Munich, BSB MS CLM 210, fol. 91v. The twelve labours of the month. The growing of vegetables and other plants belongs to the most important human activities.

2.
Caroli Magni Imp. Capitulare de villis, Leo III papa, Brevia exempla. Fulda or Rhineland (Köln?), *c.* 825-850. Domain regulation (*capitulare de villis*).
Dim. 303 x 125 mm. Wolfenbüttel, HAB Cod. Guelf 254, fols. 10v-11r. Estate Asnapium with inventory list: fol. 10v (left), below initial D: 'Invenimus in asnapio' ('we find in Asnapium…'). Lower half fol. 11r, six lines above initial R: 'Deherbis hortulanis' (about the herbs in the herb garden); two lines above initial R: 'Dearboribus' (about the trees – in the orchard).

their own languages and these were passed down as part of an oral tradition. Regional differences resulted in a multitude of different names that people apparently knew how to deal with.[2] Writing made it possible to disperse knowledge over a larger area and it became clear that a list of synonyms for plant names was needed to sort out potential confusion. Today, the World Health Organization's *Monographs on Selected Medicinal* Plants still functions according to the same system: a Latin name, followed by a list of 'selected names in the vernacular'.[3]

Is it possible today to determine which garden plants grew in western Europe one or two thousand years ago and what names were given to them (ill. 1, p. 112)? We have access to a number of written sources from about the time of Charlemagne, that is, from around 800 CE or shortly thereafter. These sources contain lists of plants growing on estates and monasteries from the late eighth and early ninth centuries. One of these documents is a capitulary, or ordinance, called a *Capitulare de villis*, and concerns the management of estates. The two other documents are inventories of the gardens and grounds of Asnapium and Treola. By chance these three lists were preserved together in a fragmented, seemingly insignificant manuscript from approximately thirty years later (ills. 2-4, pp. 114-117).[4] Another valuable source is the renowned plan of the monastery of St. Gall with its medicinal garden, vegetable garden and orchard cum cemetery, accompanied by the names of the plants and trees found in these plots. Lastly, there is the poem of Wahlafrid Strabo (the 'squint-eyed'), a work of 444 hexameters dating from 842 in which he praises the 24 plants found in his monastic garden.

If we are careful to examine them critically and compare them with the earlier literary sources from antiquity, it is possible

Hostum bene compositum .j. Uestimenta lectūpa
randū .j. Drappor addisetū parandū .j. Touelle .j.
Utensilia. Concar aereas .ij. Poculares .j. Vaccin .j.
Caldaria aerea .ij. ferreū .j. Sartaginē .i. Crama
liū .i. Andedam .j. Ferū .j. Securem .j. Dolatoriū .j.
Terebros .ij. Scalprū .j. Asciā .j. Runcinā .j. Pla
nam .j. Falces .ij. Falcicolas .ij. Furfloria .ij. Pedas
ferro paratas .ij. Utensilia lignea sufficienter.
Conlaboratu spelte uslas de anno p̄terito corb.
lxxx. Que possunt fieri de farina p̄nsar. cccc
De anno p̄terito spelte corb xc. Que possunt
fieri p̄nsar. cccl. Ordeo nouello ad seruitium
mod. dcc. Ad sementem mod dc. Lardū uslas de
anno p̄terito bāc lxxx. Nouo denutrimine bāc c
cūminucia & lunctas. Decensa. bāc. l. cūminucia
& lunctas. sunt simul bāc. cc.xxx. formā. p̄nsor
Oepe culio. Jumenta maiora. Capras lxxviij.
Pultrellas trimas. xxiiij. Vimas xij. Annotin
xij. Peledros bimos. vi. Annotinos xij. Emissa
rios uel burdones. iiij. Boues xx. Asinos .ij. Vacc
cū uitulis xxx. Tauros .iij. Alia animalia x. Por
cos maiores. l. minores. c. Verbices cū agnis lxxx
Agnos annicolos lviij. Multones lxxxij. Capras
cum hedis xv. Annicul. vj. Hircos. vj. Vacca apriū. l.
Lucas xl. Anatres vj. Putt. c. Pauones viij
Jnuenimus. iiij. ill. fisco dominico. Casam regalem
cū cameris .ij. totidemq; caminatis. Cellarium .j.
Porticus .ij. Custiculā int̄ eas cū curtino strenue
mantā. infra cameras .ij. cū totidem pisilib;
Mansiones seminarū .iij. Capellā & lapide bene
constructa. Aulas Intracustē cāsas ligneas .ij. Spi
caria .iiij. Horreas .ij. Stabolū .j. Coquinā .j. Pis
trinū .j. Custem sepe munitā cum portas ligneis .ij.
& desup solaria. Lectū paratū .j. Drappor addisetū
parandū .j. Touell .j. Utensilia. Concar aereas .ij.
Poculares .ij. Caldaria aerea .ij. ferreū .j. Patellā .j.
Securem .j. Dolatoriū .j. Terebrū .j. Scalprū .j. Plana .j
Utensilia ligneā. ad ministrandū sufficiēt.
Conlaboratu spelte uslas de anno p̄terito corb xx.
Que possunt fieri farina p̄nsar. c. Presenti anno
fuerunt de spelta corb xx. seminauit & suprastorb
x. reliqua reppertum. Sigil mod c bē. semin. c.
reliqua reppertum. Ordeo mod. cccl. sem. ccc
selig. rep. Auena mod. cc. sem. totidem. Lardum
uslas de p̄terito anno. bāc lx. Nouello denutri
mine bāc l. cūminucia & lunctas. Decensa bāc
xv. cūminucia & lunctas. sunt simul bāc. cc. nos.
Oepe culio. Jumenta maiora. Capras xl. iiij.
Pultrellas trimas. x. Vimas xij. Annicolos xv
Peledros bimos. vij. Emissarios. uel burd. ij
Boues xxiij. Vacc cū uitulis. vj. Alia animal. v
Porcos maiores xc. minores lxx. Verueces cum

agnis cl. Annicolos cc. multones viij. Capras
cum hedis xx. Annicolos xvi. Hircos v. Lucas x.
Repperimus in ill fisco dominico. domū regal
de ligno ordinabiliter constructā. Cameras .i. s̄ii.
Cellarias .j. Stabolū .j. Mansiones .iij. Spicaria
Coquinā .j. Pistrinū .j. Scuras .iij. Custē cum mo
circūdatā & desup sepe munitā. Ostiū diuersige
neris. Inser. in arboribus. Portas ligneas .ij. Uiua
ria cū piscibus .iij. Utensilia. Concar aereas .ij.
Poculares aereos .ij. Cramaliū .j. Andedam .j. Patell .j.
Securem .j. Dolatoriū .j. Terebrū .j. Scalprū .j. Pala
ferro paratā. Utensilia ligneā sufficienter.
Uestimenta. Lectū paratū .j. Culcitā .j. Plumacū .j.
Linteos .ij. Mantile .j. Mappā .j. Touellā .j. xx
De conlaboratu spelte uslas de anno p̄terito corber
Unde possunt fieri farina p̄nsar. c. Presenti anno
fuerunt spelte corb xxx. seminauit corbem .j. selig
reppertum. Ordeo mod dccc. semin mod cccc
selig. reppertum. Lardum uslas de p̄terito anno
bāc. cc. Nouello denutrimine bāc l. cūminucia
& lunctas. Decensa bāc lxxx. cūminucia & lunctas.
Oepe culio. Jumenta maiora capras. tant. Pa
trellas trimas. tant. Vimas x. Annicolos xj.
Peledros de ler. tio anno tant. Bimos. x. Annicl. v.
Emissarios .ij. Boues tant. Vacc cū uitulis tant.
Juuencos viij. Uitulos annicl. iij. Taurū .j. Porcos
maiores. l. minores. c. Verbices cū agnis. cl. Agnos
annicl. cc. Multones. c. Capras cum hedis xxx.
Annicl. xc. Hircos x. Lucas xx. Anatres iiij.
Jnuenimus Intreola fisco dominico. Casam dom
nicatā & lapide opame facta. Camar .ij. Cisto
dem caminatas. Porticū .j. Cellar .j. Torcolariū .j.
Mansiones aurorum de ligno factas .iij. Solariucū
pisile .i. Alia aedificia domacenia .iij. Spicariū .j. seu
ras .ij. Custē muro circūdatā cū posta & lapide facta
Uestimenta culcitā .j. plumacū .j. Lectarium .j. Linteā .j.
Capestoriū .j. mandale .j. Utensilia ferreolū .j. pa
Oeuines dominicas. Uinp mod. bellaplubēc .j
dcc xxx. Decensa mod. d. Canab libras .ij.
Oe herbis hortulanis. Jd. Costū. menta. Li
uesticū. Apiū. bēar. Lilium. Abrotonū. Tanezet.
Saluiā. Satureā. Nepetā. Sauinā. Sclareā. Sol
sequia. Mentastrū. Urtonicā. Acrimonia.
Maluas. Mismaluas. Caulas. Cerfoliū. Coriandr.
Porrum. Cepas. Scalonias. Brarot. Alia.
Oe arboribus. Pirarios diuersigeneris. Poma
rios diuersigener. Mispilarios. p̄sicarios. Nucar
Prunar. Auellanarios. morar. Coronar. Ceresarios.
Haec est summa de supradictis uillis
Sunt In summa spelte uslas de p̄terito anno corb tant
unde possunt fieri de farina p̄nsar. tot. frum uslas.
Et sic de ler. tio omnib. p̄ter. & p̄sen. int̄ numerabis.

Quiddemsuis exduersis arboribus. Quidde lacte. Quid de apib; quidde uuis uuarijs. Quidde coriis; quidde pellib; quidde cornib; quiddemelle & cera. quiddeunctu & siu t sapone. Quiddemonete. Uno cocto modo & recto. Quidde cerusia. De nouo & ludicio. De monetanoua & ueteri. Quidde pullis & ouis. De ansebus. Id: aucas Quidde quadrupedibus. De abbis. De canonicis. De sanctimonialibus. Quidde hortis. & cotinis. Id: de seminis. Quidde tornaturis. De fabris. De seruis. Id: de fossis fenariis. De alueolis plumbariis. Quidde arbitris Quidde polcris. De puellis habuerint omnia reposita distincta & ordinata. Ad manu gerendu, nobis iussu faciant. Utsane uelimus. quid de quibusq; de singulis rebus

LXIII. Debis omnibus suprad(i)tis. nequaquā habeam; iudicib; nris aspernum dentur. si hoc requirimus. Qui uolumus de cupressi simili modo lignis; eorum omnia Absque ullo indignatione requirere studeant. & omnia quicquid homo in domo siu. de mulieribus habere debeat. Iudices nri In nullis nris haberi debeant.

LXIIII. Ut carrama quae in hostem pergunt bene fabricent. & operibus bene ist. cum ceteris coopti sint. ut sine cessent. Aquae ad natandum. cum ipsis expensis quae minus fuerint transire flumina possint. ut nequaquā aquae In nus In nos nare uelint. & bene saluā causa mā fiat dixim. transire possint. &. Hoc uolumus ut singulis In unoquoq; carro ad spensam manū missa fiat. hoc est duodecim modia de farina. & in quibus unū ducum modia xii. Ad nrm modium metant. & ad unū quodque carrū sceuū & lancā. cucumā. & utū habeant.

LXV. Ut piscer de unū uariis nris uenundentur. & alii mittantur In locum ubi piscer semp habeant tam quo nos In nullus sinentur. tunc fiant uenundati. & ipsos ad nrm p factum iudicis nri conducant

LXVI. De capris & hircis. & cetum cornua (faciant) & pellib; nobis rationes deducant. & p singulos. nummos (denarios) tot crassos nobis In de adducant. Liquid sup(er) hab

LXVII. De mansis absis & mancipiis aequisitis. si habuerint qd non habeam ubi eos collocare possim. nobis p(re)mutare faciant. & tot quos in hostem

LXVIII. Uolumus ut bonos barrocios ferro liga & ad palatium mittere possim. Iudices singuli p(re)ua nos semp habeam. & ut illi excogitu sui faciant.

LXVIIII. De lupis omni tempore nobis ad nuntient. quando uel quisq; conp(re)hendert. & ipsi pelles nobis p(re)sentare faciant. & In mense maio. Ill(o)s lupellos p quirant & conp(re)hendant tam cu pulueno & hamis. quā q; eu fossis & canib;

LXX. Uolume qd In horto om(n)is herbas habeam. id: Lilium.

Rosas	Iouentastrum	Castanearios
Fenigreum	Tanazetam	Persicarios
Costum	Nepetam	Diuersi ge
Saluiam	Febrefugam	neris.
Rutam	Papauer	Coroniarios
Abrotanum	Bacas	Nucellanarios
Cucumeres	Ulgigina	Amandala
Peponer	Mis malas id: arbor	Mos
Cucurbitas	Malua	Moranios
Fasiolum	Canabas	Lauros
Ciminum	Pastenacas	Pinos
Ros marinu	Adripias	Ficus
Careium	Blidas	Nucarios
Cicerum italicu	Raudaculos	Cerasarios
Squillam	Caulos.	Diuersi
Gladiolum	Unione.	Generis
Dragantu	Brittas.	Malozum
Anesum	Porros.	nomina
Coloquenadas	Radices.	Cozma
Solsequam	Scalonicas.	inga.
Pmeum	Cepas	Geroldinga
Silum	Alia.	Cruedella
Lactucas	Uuaremā.	Spinaca
Cit	Cardones.	Dulcia
Enicalba	Fabas maiores.	Acrores
Nasturtium	Pisos mauriscos.	Omnia se-
Pardunc	Coriandrum.	uantia
Puledium	Cerfolum.	& subtus
Olisatum	Lactucas	Comessura
Petrosilinum	Sclareiam.	Primitiu.
Apium	& Illeborula	Per-An
Lausticum	Nus habeat sup	cii seua
Saluiam	domu sua. Iouis	Torce
Aneum	barbam.	Trium &
Feniculum	De arboribus: uolu	quartum
Imulas	mus qd habeant	
Dipamu	Pomarios diuer	
Sinape	sigeneos.	Genus. dulciores.
Saureiam	Prunarios diuer	
Si simbinum	Sorbarios	
Menam	Cerasi arios.	& Coccionis & serotina.

Prunarios diuersos.

Explicit capitulare domnicu.

Damedi id sunt conjuratores: quos nos geidon dicim. Sclam. id sunt propinqui. Solaticum. id est allodium. Solsticium. id est abiectum. Leudis aus Uel sinnus: id est unerregildus. Concapulauit. id est concidit. forheo. Luoran. id est uulnerauit.

3. ◂◂
Caroli Magni Imp.[...]. Wolfenbüttel, HAB Cod.Guelf 254, fols.11v-12r. Estate Treola with inventory list. Fol. 12r (right), at the bottom, three small D initials: 'De vineis dominicis: vino modios DCCXXX; de censu modios d. Canabis libras ij. - De herbis hortulanis [...] - De arboribus [...]'.

4. ◂
Caroli Magni Imp. [...]. Wolfenbüttel, HAB Cod.Guelf 254, fols. 15v-16r. Fol. 16r (right): List of the varieties to be planted: 'Volumus quod in horto omnes herbas habeant, id est [...]' (we want them to have all these plants, e.g...).

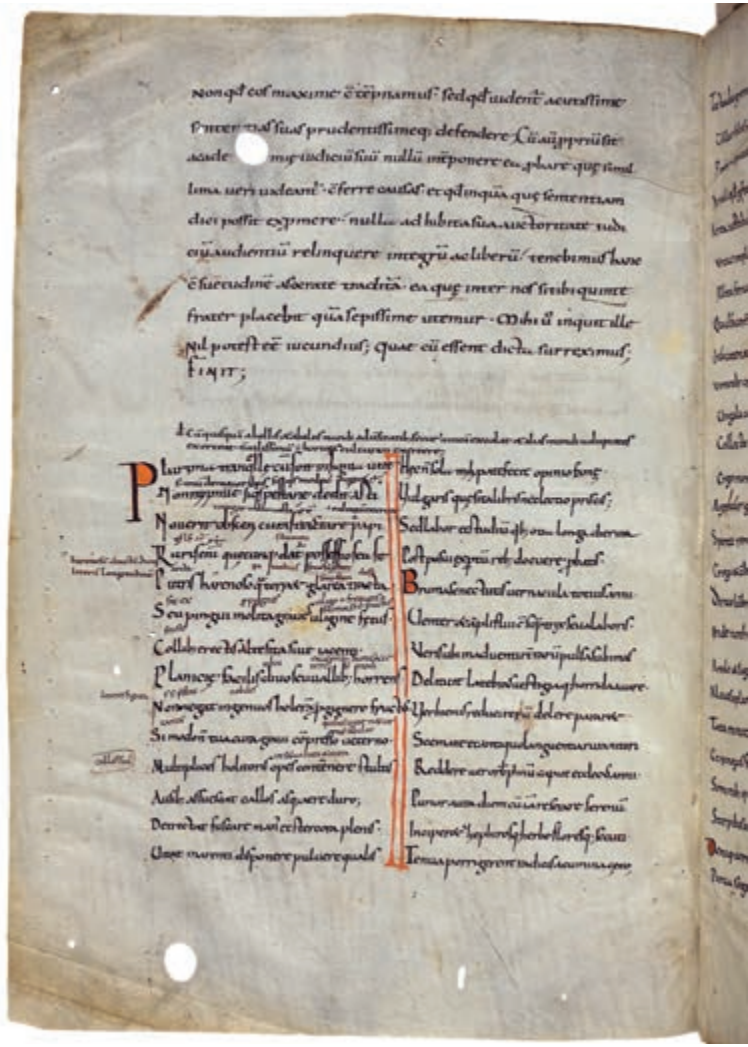
5.
Anthology, Lorsch, *c.* 1000. Dim. 295 x 195 mm. Rome, BAV MS Pal.lat. 1519, fols. 85-88v. Wahlafrid Strabo, *De cultura hortorum* ('*hortulus*'), fol. 85v. Beginning of the poem. This is not the original (autograph) by Strabo himself, but dates from more than 150 years later.

that these sources offer answers to our questions.[5] To begin with, a word of caution: we must not be too hasty in drawing conclusions from these lists. When we read the rest of the carefully specified and quantified inventory of the holdings and effects, we find that the inventories of Asnapium and Treola appear to be reliable reflections of existing situations. Are the *Capitulare*, the St. Gall plan and the *Hortulus* poem equally based on reality or were they perhaps also written to serve other purposes? To answer that question, we have to compare them to older source materials. In so doing, we find that the traditions handed down from antiquity were still applied daily. Most of the list in the *Capitulare* for example, can be found in the *De herbis et curis*, an older Latin translation of Hippocrates's *De diaeta.* Writing in his monastery Vivarium in the sixth century, Cassiodorus recommended this text and it did, indeed, gain a wide following.[6] The intention of Wahlafrid Strabo in his *Hortulus* was first and foremost to create a literary text in classical Latin hexameters by following in the footsteps of Virgil's *Georgica*, as present-day academics point out.[7] A comparison of the various lists, given in a table attached to this article (pp. 136-139), reveals that Wahlafrid's poem does not include a single plant that is not found in the Latin texts of Hippocrates, Dioscorides or Apuleius Platonicus. The past was firmly present. Consequently, it is more realistic to view the lists as attempts by the intellectual elite of the time to impart an understanding of Carolingian agriculture with the help of classical knowledge, rather than a true picture of an existing situation. It would take a few centuries more before the Greeks and Arabs of the Salerno School would provide a new fact-based way of looking at plants.

Plant names

The inventories, the poetry and the texts accompanying the Plan of St. Gall are written in Latin, the language used by monastics and the educated elite. The Latin names are to a certain extent misleading because it is not exactly clear which plants the names refer to, without the species names as they are used today. The current-day practice of the scientific naming of plants came into being in the eighteenth century and stemmed from the book *Species Plantarum*, written by Carl Linnaeus in 1753. Linnaeus classified hundreds of plant genera often using the Latin names that were already in use, such as *Malus* for apple trees and *Rosa* for roses. For each genus, he described one or more species and in the margin of the page, he placed the specific name next to the segment describing the relevant species. Only later would the elegance of this system become clear: every species has a genus name and a species name, for example *Rosa canina*, the dog rose. The same applies to the animal kingdom – contemporary man is *Homo sapiens* for example – and for other organisms.

It was a consequence of Linnaeus's practice of assigning a



double name to so many plants in Species *Plantarum* that his work came to be appreciated as the beginning of the scientific nomenclature of plants. Through the ages, the name that Linnaeus assigned to a plant and his providing it with an unambiguous description has remained the official scientific name. It was followed by the abbreviation of the author's name, L.[8] For example, before 1753, the hoary plantain was known by various names, such as *Plantago latifolia incana* (with broad and hairy leaves) or *Plantago major incana* (the large hairy one). Linnaeus published a brief description of it in 1753 under the name *Plantago media* L. Botanists worldwide have agreed to the use and recognition of scientific names of plants. Popular names tend to be local and thus in limited circulation; moreover, the same name may be used to designate several very different types of plants. Common names like 'rosemary', 'primrose', 'Rose of Sharon', or 'Guelder rose' may all have 'rose' in their name, but they are completely different plants. As an example, in the Netherlands, the dog-rose, the poppy, the Guelder rose, the Christmas rose all have 'rose' as part of their name in Dutch, yet they belong to different plant families.[9]

The gardens of Asnapium and Treola

The early ninth-century manuscript referred to above contains copies of the inventories of Asnapium (ill. 2, p. 115) and Treola (ill. 3, p. 116-117), two royal estates.[10] Asnapium is generally identified as Annappes in the north of France. All we can say about Treola is that it would have been in an area where grapes could grow, given the fact that wine is listed among the yields of the estate. In addition to furniture and animals, the harvests of the estates are catalogued. Various types of grains are listed (spelt, wheat, rye, barley and oats). Legumes such as beans and peas are named, hemp for making rope and wine generated by the vineyards. The plants in the gardens and orchards are also recorded and these lists are combined in the attached table. They include 29 names of vegetables, herbs, one decorative plant (the madonna lily), and the names of ten fruit trees in the orchard. The garden of Treola had a greater diversity than that of Asnapium.

The Latin names of all of the plants in the ninth-century document are listed in the accusative form, formed by the addition of a letter to the nominative form, *rutam* for example from the nominative *ruta* (rue) and *betas* from *betae* (beets). This is because the plants named are understood to be the objects of an unwritten phrase: 'We found the following objects in the gardens: rue, beets, etc.' Both lists include more or less the same herbs that the Romans needed for their famous *liquamen or garum*: dill, coriander, savoury, mint, oregano, fennel seed and lovage.[11] And needless to say, betony (*vettonica*) was indispensable as the most common medicinal herb in classical antiquity. The fruit trees on the list show additional varieties however. In addition to apples, pears, plums, cherries, quinces, walnuts and hazelnuts, we find the following listed: figs, mulberries, almonds, peaches and apricots.

The plants recorded in these lists were grown in an enclosed garden and all of them were useful in some way. It should come as no surprise that both lists correspond closely to the list of plants recommended for the ideal estate garden in Charlemagne's *Capitulare de villis*.

Capitulare de villis vel curtis imperii

Created during the reign of Charlemagne as a guideline for laying out the gardens of royal estates, the *Capitulare de villis vel curtis imperii* includes a list of plants and trees that should be included in the ideal garden.[12] The plant list is the seventieth stipulation in a long catalogue of requirements and recommendations. An interesting stipulation in the capitulary, number 48, instructs the reader that '[w]ine presses on our estate must be in good order. And it should be guaranteed that no one presses the grapes with their feet, but that everything is clean.' It is believed that the original catalogue dates from the last decade of the eighth century. The only extant copy is found in the same small, fragmentary collection from a few decades later (ill. 4, p. 118), that contains the inventories of Asnapium and Treola.[13] The manuscript lists seventy-four garden plants and sixteen fruit trees 'of various kinds'. Some of the names in the list can refer to more than one plant. It is likely that *cardones*, for example, is meant to specify fuller's teasel as well as cardoon.

Not only edible plants are listed but also plants grown for other purposes, such as fuller's teasel, which was used for combing wool, or pigments like dyer's madder (*warentiam*). Some plants are still known today as ornamental plants, such as the madonna lily (*lilium*), the bearded iris (*gladiolum*) and the rose (*rosas*), but they could also have been used for practical purposes: lilies and roses for their fragrant petals and the irises for their perfumed rootstocks.

Many fruit trees were known at the time, including various types of apples, the names of which are also given in the vernacular. In addition, the following are listed: pears, plums, sweet and sour cherries, common medlars, sweet chestnuts, quinces, mountain ash berries, walnuts and hazelnuts, peach and almond trees, black mulberries, laurels, figs and *pina* (pines or umbrella pines). Laurels, figs and umbrella pines grow in warm regions and the text specifies that they must be planted in a sunny, sheltered spot.[14] The list is practical and includes no trees or shrubs that would not survive a harsh winter away from the Mediterranean, such as pomegranates, citrus or date palms. The five Germanic names for the apple and pear varieties indicate that the list was influenced to a certain extent by actual practice. The local apple and pear varieties are accompanied by instructions for their use – are they sweet, or are they better when cooked? The *pera serotina* is a type of pear that is still known today and is called *poire de Messire-Jean*.[15] Still, it is clear that there was a classical Latin scientific source.[16] Perhaps a Latin glossary was used as reference material.

It is apparent from the Asnapium catalogue that various types of beans, peas and even chickpeas were grown on a large scale as staples. The same holds true for cereals. In addition, we find cabbage, beets, turnips, carrots, parsnips, lettuce and many types of alliaceous vegetables, among them onions, leeks, garlic and shallots. The cucumber family was also represented: cucumbers, melons, calabash, and perhaps others as well.

List	Place in the garden	Medieval name	English name	Principal use
C/A/T/G/H	St. Gallen: vegetable garden; Asnapium and Treola: vegetable garden	Lilium	madonna lily	medicine; Marian symbol
C/G/H	St. Gallen: vegetable garden	Rosa(s)	dog-rose or French rose	medicine; Marian symbol
C/G	St. Gallen: vegetable garden	Fenigrecum / fena greca	fenugreek	medicine, herb, fodder
C/A/T/G/H	St. Gallen: vegetable garden; Asnapium and Treola: vegetable garden	Costo / costum / costus	costmary	medicine
C/A/T/G/H	St. Gallen: vegetable garden; Asnapium and Treola: vegetable garden	Salvia(m)	common sage	medicine, herb
C/A/G	St. Gallen: vegetable garden; Asnapium: vegetable garden	Ruta(m)	rue	medicine, herb
C/T/H	Treola: vegetable garden	Abrotanum	southernwood	medicine
C		Cucumeres	cucumber	food
C/H		Pepones	musk melon	food
C/H		Cucurbita(s)	bottle gourd	storage and transport
C/G	St. Gallen: vegetable garden	Fasiolo / fasiolum	cowpea or lablab	food
C/G	St. Gallen: vegetable garden	Ciminum / cumino	cumin	medicine, herb
C/G	St. Gallen: vegetable garden	Ros marinum / rosmarino	rosemary	medicine, herb
C		Careium	caraway	medicine, herb
C		Cicerum italicum	chickpea	food
C		Squillam	squill	medicine, herb
C/G/H	St. Gallen: vegetable garden	Gladiola / gladiolum	bearded iris or gladiolus	medicine, herb
C		Dragantea	tarragon or bistort	medicine, herb
C		Anesum	anise	medicine, herb
C		Coloquentidas	bitter apple or white bryony	medicine, herb
C/T	Treola: vegetable garden	Solsequia(m)	European heliotrope	medicine, herb
C		Ameum	ajowan or baldmoney	medicine, herb
C		Silum	laserwort	medicine, herb
C/G	St. Gallen: vegetable garden - northern side	Lactuca(s)	lettuce	medicine, food
C/G	St. Gallen: vegetable garden - northern side	Git(to)	black cumin	medicine, herb
C		Eruca alba	rocket salad	medicine, food
C		Nasturtium	common watercress	medicine, food
C		Parduna	great burdock	medicine
C/G/H	St. Gallen: vegetable garden	Puledium / pulegium / puleium	pennyroyal	medicine
C		Olisatum	alexanders	medicine
C/A/G	Asnapium: vegetable garden	Petresilinum / petresilum / petrosilium	parsley	medicine, herb
C/A/T/G/H	St. Gallen: vegetable garden - southern side; Asnapium and Treola: vegetable garden	Apium	celery	herb, food
C/A/T/G/H	St. Gallen: vegetable garden; Asnapium and Treola: vegetable garden	Levisticum / libesticum / lubestico / lybisticum	lovage	medicine, herb
C/A/T	Asnapium and Treola: vegetable garden	Savinam	savin	medicine - poisonous
C/H	St. Gallen: vegetable garden - soutern side	Anet(h)um	dill	medicine, herb
C/G/H	St. Gallen: vegetable garden	Fenicolum / feniculum	fennel	medicine, herb
C		Intubas	wild cichory	medicine
C		Diptamnum	dittany	medicine
C		Sinape	white mustard	medicine, herb
C/A/T/G	St.Gallen: vegetable garden; Asnapium and Treola: vegetable garden	Satureiam / saturejam	summer savory	medicine, herb
C/G	St. Gallen: vegetable garden	Sisimbrium / sisimbria	watermint	medicine, herb
C/A/T/G/H	St. Gallen: vegetable garden; Asnapium and Treola: vegetable garden	Menta(m)	mint	medicine, herb
C/A	Asnapium and Treola: vegetable garden	Mentastrum / mentastram	horsemint	medicine, herb
C/A/T	vittoni	Tanazitam / tanezatum	tansy	medicine
C/T/H	Treola: vegetable garden	Neptam/nepeta	catmint	medicine
C		Febrefugiam	feverfew or common centaury	medicine
C/G/H	St. Gallen: vegetable garden - southern side	Papaver	opium poppy	medicine
C/T/G	St. Gallen: vegetable garden - southern side; treola: vegetable garden	Betas	beet	food
C		Vulgigina	asarabacca	medicine
C/A	Treola: vegetable garden	Mismalvas id est alteas	marsh mallow	herb
C/T	Treola: vegetable garden	Malvas	high mallow	medicine
C		Carvitas	carrot	food
C/G	St. Gallen: vegetable garden - northern side	Pastenacas / pastinchus	parsnip	food
C		Adripias	garden orache	food

Family name	Scientific (Latin) name
Liliaceae	Lilium candidum L.
Rosaceae	Rosa canina L. and R. gallica L.
Apiaceae	Trigonella foenum-graecum L.
Asteraceae	Tanacetum balsamita L.
Lamiaceae	Salvia officinalis L.
Rutaceae	Ruta graveolens L.
Asteraceae	Artemisia abrotanum L.
Cucurbitaceae	Cucumis sativus L.
Cucurbitaceae	Cucumis melo L.
Cucurbitaceae	Lagenaria siceraria (Molina) Standl.
Fabaceae	Vigna unguiculata (L.) Walp. or Lablab purpureus (L.) Sweet
Apiaceae	Cuminum cyminum L.
Lamiaceae	Rosmarinus officinalis L.
Apiaceae	Carum carvi L.
Fabaceae	Cicer arietinum L.
Asparagaceae	Drimia maritima (L.) Stearn
Iridaceae	Iris x germanica L. or Gladiolus italicus Mill.
Asteraceae or Polygonaceae	Artemisia dracunculus L. or Persicaria bistorta (L.) Samp.
Apiaceae	Pimpinella anisum L.
Cucurbitaceae	Citrullus colocynthis (L.) Schrad. of Bryonia alba L.
Boraginaceae	Heliotropium europaeum L.
Apiaceae	Trachyspermum ammi (L.) Sprague or Meum athamanticum Jacq.
Apiaceae	Laserpitium siler L.
Asteraceae	Lactuca sativa L. or Lactuca virosa L.
Ranunculaceae	Nigella sativa L.
Brassicaceae	Eruca vesicaria (L.) Cav.
Brassicaceae	Nasturtium officinale R.Br.
Asteraceae	Arctium lappa L.
Lamiaceae	Mentha pulegium L.
Apiaceae	Smyrnium olusatrum L.
Apiaceae	Petroselinum crispum (Mill.) A.W.Hill
Apiaceae	Apium graveolens L.
Apiaceae	Levisticum officinale W.D.J.Koch
Cupressaceae	Juniperus sabina L.
Apiaceae	Anethum graveolens L.
Apiaceae	Foeniculum vulgare Mill.
Asteraceae	Cichorium intybus L.
Rutaceae	Dictamnus albus L.
Brassicaceae	Sinapis alba L.
Lamiaceae	Satureja hortensis L.
Lamiaceae	Mentha aquatica L.
Lamiaceae	Mentha aquatica L., M. spicata L., M. suaveolens Ehrh.
Lamiaceae	Mentha longifolia L.
Asteraceae	Tanacetum vulgare L.
Lamiaceae	Nepeta cataria L.
Asteraceae or Gentianaceae	Tanacetum parthenium (L.) Sch.Bip. or Centaurium erythraea Rafn
Papaveraceae	Papaver somniferum L.
Amaranthaceae	Beta vulgaris L.
Aristolochiaceae	Asarum europaeum L.
Malvaceae	Althaea officinalis L.
Rosaceae	Malva sylvestris L.
Apiaceae	Daucus carota L.
Apiaceae	Pastinaca sativa L.
Amaranthaceae	Atriplex hortensis L.

Herbs were an essential feature of the early medieval garden, both for cooking and for medicinal purposes: anise, dill, coriander, fenugreek, fennel and both regular and black cumin. Nor should one forget the opium poppy (*Papaver somniferum*), the source of opium, whose seeds are still enjoyed innocuously today as an ingredient or topping in breads and pastries. Many herbs on the list are well-known to us today: parsley, celery leaf, rosemary, sage, mint and lovage, although in former times most were of course only available in the summer.

Some plants would not have been grown in gardens, but elsewhere. The *sempervivum*, *jovis barbam,* or *sempervivum tectorum,* also known as common houseleek, for example, is a succulent that is still grown on roofs in the belief that it provides protection against lightning.

The plan of St. Gall

It was not just on royal estates that knowledge about plants and medicine was gathered and passed on. Monasteries were also important educational centres. In many cases, monasteries were large institutions, where travellers could stop and rest, and the ill were treated. The world-famous library of St. Gall, the *Stiftsbibliothek,* dating from the Carolingian period, holds a plan constructed of five sheets of parchment that have been sewn together to measure 113 by 78 cm. It contains the meticulously drafted plan for a fictitious Benedictine monastery, along with its outbuildings and gardens. The anonymous author of the accompanying text on the back of the parchment dedicates the pages to Gozbertus, the abbot of St. Gall between 816 and 837.[17] The buildings are drawn in red and the text is written in dark-brown ink (ill. 7, p. 125). In all likelihood, the buildings were not constructed exactly according to this plan, but rather the plan was intended as an inspiration for new monasteries to be built. Three plots on the large grounds surrounding the monastic buildings were devoted to garden plants. One of these, in the northeast corner, was a small herb or medicinal garden measuring about 11 by 8 metres. Not far from there, on the north side, was a vegetable garden of more than 16 by 25 metres adjoined by a large cemetery measuring over 24 by 38 metres, with space for fruit trees.

Sixteen beds are indicated in the herb garden, each of which was devoted to one type of plant (ills. 6a and 6 b, p. 124). Essential flowers were the bearded iris, the madonna lily and the rose, that we interpret to be the French rose with its dark pink, scented petals. There was a bed with beans and, interestingly, twelve beds with herbs: savoury, costmary, fenugreek, rosemary, sage, rue, cumin, lovage, fennel, and three types of mint. All of them were usable for decoration, seasoning and as medicine. Eighteen beds are indicated in the vegetable garden with the normal assortment from the onion family: garlic, shallots, leeks and onions. In addition, there were cabbages, parsnips, radishes, lettuce and beets. A number of herbs are included that were apparently not considered to be medicinal: parsley, chervil, dill, black cumin, savoury, celery leaf and coriander. Surprisingly, two sorts of poppies are included, the opium poppy and one that is not identifiable. Space was also planned for a large assortment of useful trees in the cemetery: apple, pear, plum,

List	Place in the garden	Medieval name	English name	Principal use
C		Blidas	wild amaranth	food
C/A	Asnapium: vegetable garden	Ravacoulos / ravacaules	turnip	food
C/A/T/G	Asnapium and Treola: vegetable garden	Caulos / Caules / Caulas	cabbage	food
C		Uniones	Welsh onion or ramsons	food, herb
C/T	Treola: vegetable garden	Britlas / brittolos	chives	food, herb
C/A/T/G	St. Gallen: vegetable garden; Asnapium and Treola: vegetable garden	Porros / porrum	common leek	food
C/G/H	St. Gallen: vegetable garden - southern side	rafanum / radices	radish	medicine, herb
C/A/T/G	St. Gallen: vegetable garden - northern side; Asnapium and Treola: vegetable garden	Ascalonicas / ascolonias / scalonias	shallot	food, herb
C/A/T/G	St. Gallen: vegetable garden - southern side; Asnapium and Treola: vegetable garden	Cepas	onion	food
C/A/T/G	St. Gallen: vegetable garden - northern side; Asnapium and Treola: vegetable garden	Alia(s)	common garlic	food, herb
C		Warentiam	madder	pigment
C		Cardones	fuller's teasel or cardoon	wool processing, food
C		Fabas maiores	broad bean	food
C		Pisos mauriscos	garden pea	food
C/A/T/G	St. Gallen: vegetable garden - southern side; Asnapium and Treola: vegetable garden	Coriandrum / coliandrum	coriander	medicine, herb
C/T/G/H	St. Gallen: vegetable garden - northern side; Treola: vegetable garden	Cer(e)folium	garden chervil	medicine, herb
C		Lacteridas	caper spurge	medicine
C/T/H	Treola: vegetable garden	Sclareiam / sclarega	clary sage	medicne
C	*Et ille hortulanus habeat super domum suam*	Iovis barbam	common house leek	ritual: protection
C	*De arboribus volumus quod habeant*			
C/A/T/G	Asnapium and Treola: orchard	Perariciis servatoria / perarios / perarius / pirarios	common pear	fruit
C/T/G	St. Gallen: orchard (cemetery); Treola: orchard	Prunarios / prunarius (*diversi generis*)	plum	fruit
C/G	St. Gallen: orchard (cemetery)	Sorbarios / sorbarius	service tree	fruit
C/A/T/G	St. Gallen: orchard (cemetery); Asnapium and Treola: orchard	Mespilarios / mispilarios / mispolarius	medlar	fruit
C/G	St. Gallen: orchard (cemetery)	Castanearios / casternarius	sweet chestnut	nut
C/A/T/G	St. Gallen: orchard (cemetery); Asnapium and Treola: orchard	Persicarios / persicus (*diversi generis*)	peach	fruit
C/A/T/G	Asnapium and Treola: orchard	Cotoniarios / guduniarius	quince	fruit
C/A/G	St. Gallen: orchard (cemetery); Asnapium and Treola: orchard	Avel(l)anarios / avellenarius	hazelnut or filbert	nut
C/G	St. Gallen: orchard (cemetery)	Amandalarios / amendelarius	almond	nut
C/A/G	St. Gallen: orchard (cemetery); Asnapium and Treola: orchard	Mararios / morarios / murarios	black mulberry	fruit
C/G	St. Gallen: orchard (cemetery)	Lauros / laurus	bay laurel	medicine
C		Pinos	stone pine	fruit
C/G	St. Gallen: orchard (cemetery)	Ficus	fig	fruit
C/A/T/G	St. Gallen: orchard (cemetery); Asnapium and Treola: orchard	Nucarios / nugarius	Persian walnut	nut
C/T	Treola: vegetable garden	Ceresarios / cerisarios (*diversi generis*)	cherry	fruit
C		Malorum nomine Gozmaringa	apple	fruit
C		Malorum nomine Geroldinga	apple	fruit
C		Malore nomine Crevedella	apple	fruit
C		Malorum nomine Spirauca	apple	fruit
	explicit capitulare dominicum			
NOT IN CAPITULRE, IN OTHER GARDENS:				
A/T/H	Asnapium and Treola: vegetable garden	Vittonicam / vettonica	betony	medicine
T/H	Treola: vegetable garden	Acrimonia / agrimonia	common agrimony	medicine
H		Absinthium	absinthe	herb
H		Marrubium	common horehound	medicine
H		Ambrosia	common yarrow	medicine
G	St. Gallen: vegetable garden - southern side	Magones	poppy	medicine
G	St. Gallen: orchard (cemetery)	Malarius	apple	fruit

mountain ash, common medlar, laurel, sweet chestnut, fig, quince, peach, hazelnut, almond, mulberry and walnut.

Hortulus

Around 842, the monk Wahlafrid – named by his pupils 'Strabo', i.e., squinty-eyes - wrote his *De cultura hortorum*, known simply as *Hortulus* (small garden), a poem consisting of 27 sections, 24 of which focused on a single plant (ill. 5, p. 118).[18] Wahlafrid (*c.* 808-849) was born in Swabia, near Lake Constance. Destined for a career as a monk, he was dropped off by his parents at the age of eight or nine at the Benedictine monastery at Reichenau, the same place where the plan of St. Gall

Family name	Scientific (Latin) name
Amaranthaceae	Amaranthus blitum L.
Brassicaceae	Brassica oleracea L. or B. rapa L.
Brassicaceae	Brassica oleracea L.
Amaryllidaceae	Allium fistulosum L. or A. ursinum L.
Amaryllidaceae	Allium schoenoprasum L.
Amaryllidaceae	Allium porrum L.
Brassicaceae	Armoracia rusticana G.Gaertn., B.Mey. & Scherb. or Raphanus sativus L.
Amaryllidaceae	Allium ascalonicum L.
Amaryllidaceae	Allium cepa L.
Amaryllidaceae	Allium sativum L.
Rubiaceae	Rubia tinctorum L.
Caprifoliaceae or Asteraceae	Dipsacus sativus (L.) Honck. or Cynara cardunculus L.
Fabaceae	Vicia faba L.
Fabaceae	Pisum sativum L.
Apiaceae	Coriandrum sativum L.
Apiaceae	Anthriscus cerefolium (L.) Hoffm.
Euphorbiaceae	Euphorbia lathyris L.
Lamiaceae	Salvia sclarea L.
Crassulaceae	Sempervivum tectorum L.
Rosaceae	Pyrus communis L.
Rosaceae	Prunus domestica L.
Rosaceae	Sorbus domestica L.
Rosaceae	Mespilus germanica L.
Fagaceae	Castanea sativa Mill.
Rosaceae	Prunus persica (L.) Batsch
Rosaceae	Cydonia oblonga Mill.
Betulaceae	Corylus avellana L. or C. maxima L.
Rosaceae	Prunus dulcis (Mill.) D.A.Webb
Moraceae	Morus nigra L.
Lauraceae	Laurus nobilis L.
Pinaceae	Pinus pinea L.
Moraceae	Ficus carica L.
Juglandaceae	Juglans regia L.
Rosaceae	Prunus avium (L.) L. or P. cerasus L.
Rosaceae	Malus domestica Borkh.
Rosaceae	Malus domestica Borkh.
Rosaceae	Malus domestica Borkh.
Rosaceae	Malus domestica Borkh.
Lamiaceae	Betonica officinalis L.
Rosaceae	Agrimonia eupatoria L.
Asteraceae	Artemisia absinthium L.
Lamiaceae	Marrubium vulgare L.
Asteraceae	Achillea millefolium L.
Papaveraceae	Papaver spec.
Rosaceae	Malus domestica Borkh.

had been drawn. In terms of culture and literacy, Reichenau was a leading player in the Carolingian Renaissance, along with its sister monasteries St. Gall, Fulda and Lorsch. In 829, Wahlafrid was called to the imperial court at Aachen to serve as a tutor for Charlemagne's grandson Charles the Bald. Eventually, he returned to Reichenau as abbot of the monastery. In addition to the *Hortulus,* he later wrote liturgical hymns, devotional poems, and biographies of saints such as Othmar and Gallus. He drowned in the River Loire in 849 while on a diplomatic mission from Ludwig the German to Charles the Bald.

Wahlafrid's book qualifies as the first contribution to gardening literature in medieval European history. In contrast to the *Capitulare de villis* and the plan of St. Gall, the poem appears to be about an actual garden, since Wahlafrid points out that its placement is not ideal and describes in detail the practical work carried out in the garden.

Most of the 24 plants are already familiar to us. Here again there are a number of flowering plants, the madonna lily (*lilium*), the rose (*rosas*) and the bearded iris (*gladiolum*). In addition, the melon and the bottle gourd are also mentioned. Bottle gourds are edible when young, while older fruits can be dried and used as storage vessels for all kinds of things. Not a single legume is mentioned. It was clearly all about herbs, some for adding flavour to food such as the radish or horseradish, celery and chervil. Others were also important for medicinal purposes: sage, rue, southernwood, white horehound, fennel, lovage, clary sage, two types of tansy, two types of mint, celery leaf, betony, common agrimony, yarrow and catnip.

The *Hortulus* was translated into several modern languages and published alongside the Latin text.

Table of plants

We have selected the plants in the various historical sources and put them together in a table, organizing them according to the three different gardens in which they would have grown, the *hortus* or vegetable garden, the *herbarius* or herb garden and the *viridarium* or orchard. This allows us to see how the plants were used. The table is set up as follows: the first column shows where the plant is mentioned, the *Capitulare de villis* (C), the garden of Asnapium (A), the garden of Treola (T), the plan of St. Gall (G) or the *Hortulus* (H). The second column shows the place where the plant was grown, if this is recorded in the source text: vegetable garden, herb garden or orchard. The third column indicates the name as it is given in the source, usually in the accusative. The fourth column gives the common name in English and the fifth provides an indication for the use of the plant. The plant family and the scientific name (with an abbreviation indicating who named it) follow in the last columns.

If we look at the resulting list in its entirety, we note a number of typical nutritional types of plants: chickpeas, beets, broad beans, peas, cabbage and turnips. Herbs were intended primarily for medicinal purposes, as we find in such sources as Dioscorides and Apuleius Platonicus. Parsley was used to treat snake bites and muscle pain, and even the fragrant madonna lily, surprisingly, had a medicinal purpose as it was believed to help treat snake bites and sprains. It is interesting to see in the table which plants are mentioned in which lists and to note the similarities and small differences. Almost all of the plants mentioned in the St. Gall's plan and the *Hortulus* poem are also included in the *Capitulare de villis*. The herbs mentioned in the medicinal garden of the monastery are also found in the

6a, 6b en 6c.
a: Detail in colour of the herb garden, upper left on the plan of St. Gall. b: The identical plan with legible names. c: The monastic garden as reconstructed in the Openluchtmuseum in Arnhem, The Netherlands.

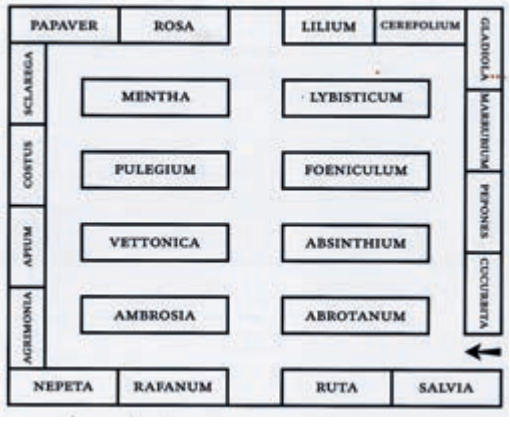
7. ▷
Plan for the ideal monastery (the monastery of St. Gall), c. 825-850.
Dim. 112 x 77.5 mm. St. Gall, SB MS 1092, five sheets of parchment sewn together. The design contains more than 40 buildings surrounded by gardens, walls and an orchard. A total of 333 notations have been added, among which are names of plants and trees in the two gardens and the orchard. The herb garden is at top left, the vegetable garden is at top right, and immediately to its left is the cemetery with at its centre the cross.

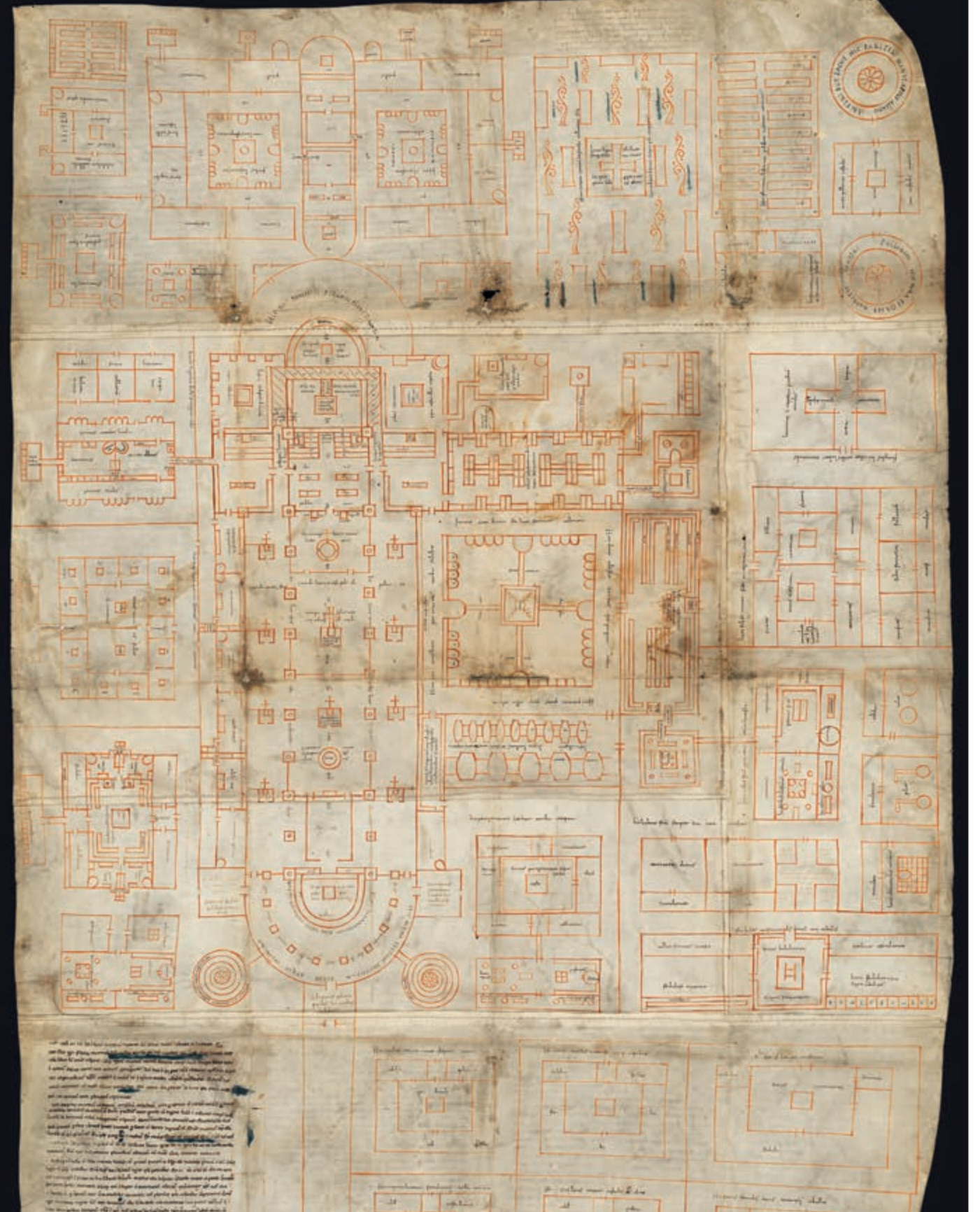
garden of Treola. Most of the Latin names are more or less the same, albeit with variations in spelling that depended on the custom of the copyist. Given the little divergence between the lists, we can conclude, in general, that the different types of documents – inventory, estate regulation, poem, monastic plan – all draw upon the same classical and early medieval sources. The answer to the question that we posed at the beginning of this essay as to whether or not it is possible to establish which plants were grown in the gardens of Western Europe one or two thousand years ago, appears to be yes and no. We are able to answer the question to a certain extent and with some reservations, but it is impossible to form a complete picture. To obtain a more complete insight into what was grown in European gardens in the ninth century, other sources, both written and non-written, would have to be examined. That requires further research.

Conclusion
The simple positioning of the assortment of plants and the form of the gardens in which they were grown, still hold interest for us today, offering us an insight into the past. They have contributed to modern recreations of medieval gardens. In 1927, the Open-Air Museum in Arnhem reconstructed a medieval garden that included plants mentioned in the *Hortulus* and the plan of St. Gall (ill. 6c, p. 124); thus, the design was based on the garden described by Wahlafrid and on the medicinal garden of St. Gall.[19] Matilo Park in Leiden is similarly inspired by a medieval garden. In France, we find a medieval garden at the Abbey of Fontevraud (Fontevraud-l'Abbaye), as well as at the Carolingian garden in Melle and the gardens of the priory of Notre Dame d'Orsan (Maisonnais). In England, we find Queen Eleanor's Garden in Winchester and in Wales, Sir Roger Vaughan's Garden (Tretower). In Germany, we have the gardens of the monastery and palace of Bebenhausen (Tübingen) and, finally, there is the medieval herb garden at the original location of the monastery on the island of Reichenau, Lake Constance. We should note the upsurge of interest in many of the 'forgotten' vegetables and herbs from the Middle Ages. Seeds of many old varieties can be easily obtained today so that people can try them and decide whether or not they deserve to be kept for the future.









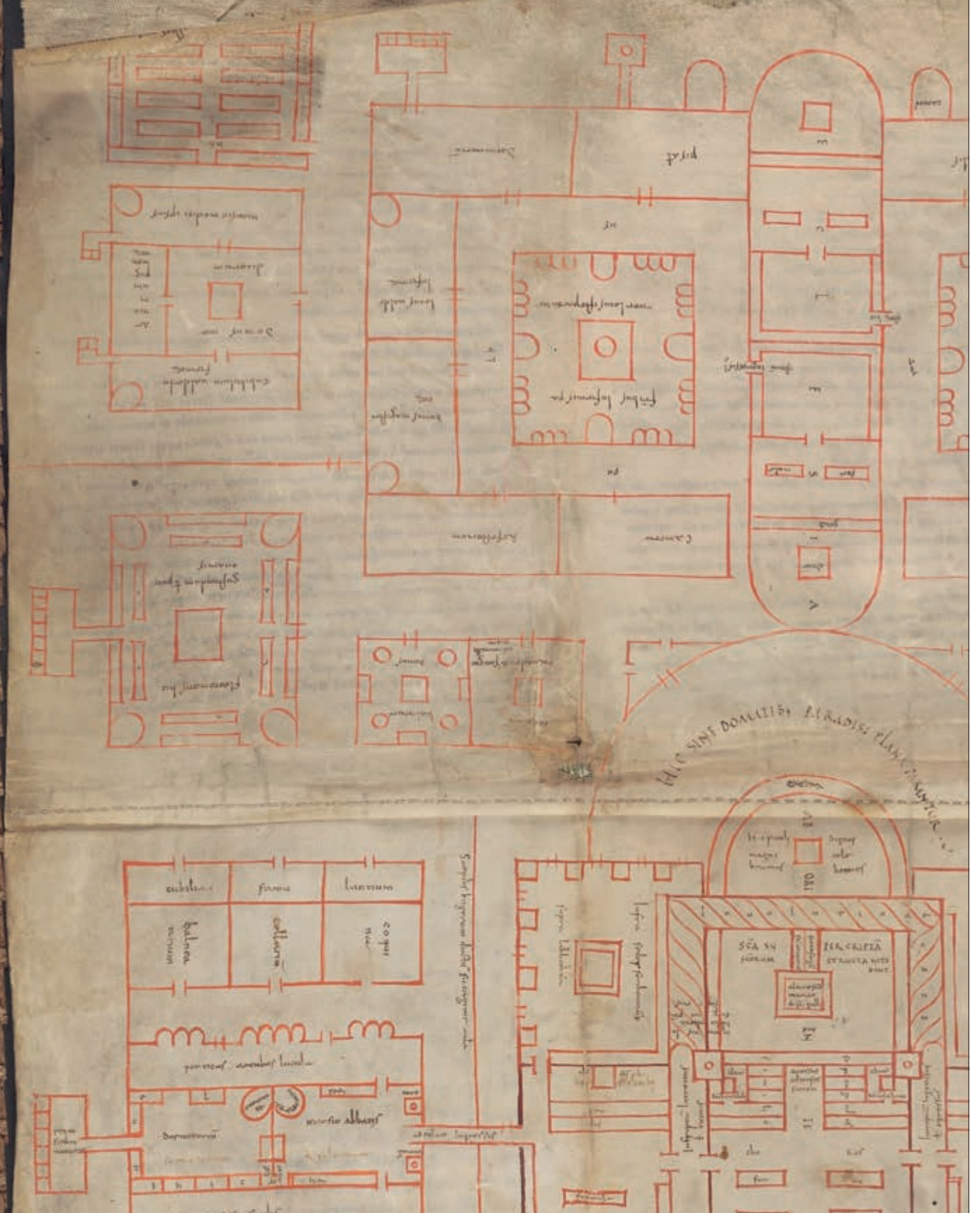
NOTES

[1] With thanks to Dr. Karl Heidecker, University of Groningen, who was willing to read the text with a critical eye and make suggestions.
[2] There are various dictionaries with translations of plant names. See online: http://medieval-plants.org/mps-daten/languages/ and http://oldenglish-plantnames.org/.
[3] *WHO Monographs on Selected Medicinal Plants*, volume 1. Geneva 1999. See also A. Pavord, *The Naming of Names: The Search for Order in the World of Plants*. London 2005.
[4] Wolfenbüttel, Herzog August Bibliothek, Cod. Guelf.254, ff. 10v-11r (Asnapium), ff. 11v-12r (Treola), and ff. 12v-16r (*Capitulare*) with the plant list on f. 16r. H. Härtel et al., *Katalog der mittelalterlichen Helmstedter Handschriften. T. 1: Cod. Guelf. 1 bis 276*. Helmst. Wiesbaden 2012, pp. 321-322. H.R. Loyn & J. Percival, *The Reign of Charlemagne: Documents on Carolingian Government and Administration Documents of Medieval History* 2. London 1975, pp. 98-105.
[5] J. Stannard, 'Alimentary and Medicinal Uses of Plants', in: E.B. Macdougall (ed.), *Medieval Gardens*. Washington 1986. Dumbarton Oaks Colloquium on the History of Landscape Architecture IX. pp. 69-92.
[6] C. Opsomer-Halleux, 'The Medieval Garden and Its Role in Medicine', in: E.B. Macdougall (ed.), *Medieval Gardens*. Washington 1986. Dumbarton Oaks Colloquium on the History of Landscape Architecture IX, p 98. The quotation from Cassiodorus can be found in: *De institutione divinarum litterarum* cap. 31, 'De monachis curam infirmorum habentibus': 'Deinde [legite] Aurelii De medicina, et Hippocratis De Herbis et Curis.' (MPL 070 1146B). Valentin Ross has written on *De herbis et curis* and related texts: V. Ross, *Anecdota Graeca et Graecolatina: Mitteilungen aus Handschriften zur Geschichte der griechischen Wissenschaft*. Berlin 1864-1870, reprint Amsterdam 1963, II, Chapter V: 'de oleribus und die medicinische Literatur des sechsten Jahrhunderts', pp. 101-160, in particular pp. 151-156. The manuscript from the library of Saint Gall, Cod. 762, can be found online: http://www.e-codices.unifr.ch/en/list/one/csg/0762.
[7] Opsomer-Halleux (note 6), p 99; J. Mitchell (ed. and transl.), *On the Cultivation of Gardens, A Ninth Century Gardening Book by Walafrid Strabo*. San Francisco 2009, p 11; The Dutch translation by Vincent Hunink – www.vincenthunink.nl – contends: '[Walafrid] follows in an erudite manner the language and style of the ancient Roman poets, in particular Virgil. The result renders his poetry rather complex and carries the stamp of a long tradition; look at the difficult, layered allusions, the calibrated formulations, complicated descriptions and comparisons of simple matters and references to classical texts.'
[8] Linnaeus' nomenclature is still the basis. His classification of the plant kingdom is no longer used; a natural system is now the norm, based on many characteristics, one of which is DNA.
[9] The Meertens Institute in Amsterdam maintains a list of common names of plants in Dutch: www.meertens.knaw.nl/pland/
[10] Wolfenbüttel, Herzog August Bibliothek, Cod. Guelf.254, ff. 10v-11r ('[Asnapium]: De herbis hortulanis quas repperimus: id est lilium, costum, mentam, petresilum, rutam, apium, libesticum, salviam, satureiam, savinam, porrum, alia, tanazitam, mentastram, coliandrum, scalonias, cepas, caules, ravacaules, vittonicam. De arboribus: pirarios, pomarios, mispilarios, persicarios, avelanarios, nucarios, morarios, cotoniarios),' and ff. 11v-12r ('[Treola]: de herbis hortulanis: id est costum, mentam, livesticum, apium, betas, lilium, abrotanum, tanezatum, salviam, satureiam, neptam, savinam, scalareiam, solsequia, mentastram, vittonicam, acrimonia, malvas, mismalvas, caulas, cerfolium, coriandrum, porrum, cepas, scalenias, brittolos, alia. De azrboribus: pirarios diversigeneris, pomarios diversi generis, mispilarios, persicarios, nucarios, prunarios, avelanarios, morarios, cotoniarios, cerisarios).' The source text of Asnapium has been published by F. Austin Ogg (ed.), *A Source Book of Mediaeval History: Documents Illustrative of European Life and Institutions from the German Invasions to the Renaissance*. New York, 1907, reprint New York 1972, pp. 127-129. Online: https://legacy.fordham.edu/Halsall/source/800Asnapium.asp. A. Boretius (ed.), 'Capitulare regum Francorum I', in: *Monumenta Germanie Historica, Legum Sectio II*. Hannover 1883, pp. 250-256, provides the complete text of the *Brevium Exempla*, i.e. also the inventory of Treola. https://download.digitale-sammlungen.de/pdf/1462091030bsb00000820.pdf.
[11] Garum is a salty sauce made from fermented fish guts with which the Romans doused every possible meal. S. Grainger, *The Story of Garum: Fermented Fish Sauce and Salted Fish in the Ancient World*. Abingdon 2021. Many recipes can also be found on the internet.
[12] K.J. Strank & J. Meurers-Balke, *Obst, Gemüse und Kraüter Karls des Grossen*. Mainz 2008.
[13] Wolfenbüttel, Herzog August Bibliothek, Cod. Guelf.254, ff. 12r-16r.
[14] One of the theories is that the list has Aquitaine influences. If that is true, these plants can be used everywhere.
[15] J.L.B. Cormon & V. Manni (eds.), *Dizionario francese-italiano ed italiano-francese*, vol. 1, Lyon 1802, p. 426; S. Rehm (ed.), *Multilingual Dictionary of Agronomic Plants*. Dordrecht 1994, p. 157. Other names in Dutch are *zandpeer*, Chinese peer, Japanse peer.
[16] H. R. Loyn & J. Percival (eds.), *The Reign of Charlemagne: Documents on Carolingian Government and Administration*. London 1975.
[17] W. Horn & E. Born, *The Plan of St. Gall: A Study of the Architecture & Economy of, & Life in a Paradigmatic Carolingian Monastery*. Berkeley 1979, 3 vols.
[18] *Monumenta Germanie Historica*, Vol.5/1. 1884, pp. 178-179. In English: Raef Payne, *Hortulus. Walahfrid Strabo*. Pennsylvania 1966; Mitchell op.cit (note 7). In German: O. Schönberger, 'Nachwort', in: *Walahfrid Strabo: De cultura hortorum (Hortulus). Über den Gartenbau.Lateinisch/Deutsch, hrsg. u. übers.* v. Otto Schönberger, Stuttgart 2002 [Reclams Universal-Bibliothek, 18199]; W. Berschin (ed. trad.) *Walahfrid Strabo De cultura hortorum (Hortulus). Das Gedicht vom Gartenbau*. Heidelberg, 2007. (Reichenauer Texte und Bilder 13); In French: Henri Leclerc, Le petit jardin (Hortulus) de Walahfrid Strabus, Amédée Legrand, 1933. In Dutch: V. Hunink et al., *Hortulus. De kloostertuin van Walafried Strabo*. Warnsveld 2004.
[19] Hunink, op. cit. (n. 18), pp. 45-52.

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Claudine A. Chavannes-Mazel (1949) studied Art History and Palaeography/Codicology at Leiden University and earned her Ph.D in 1988. Her dissertation topic was the richly illustrated fourteenth-century encyclopaedia, *Le Miroir historial* that was made for the *dauphin* of France and is now kept in the Leiden University Library. From 1977-1983, she was part-time teacher of Manuscript Studies and Art History at the Tiele Academy in The Hague (now The Hague University of Applied Sciences). Except for an interval of four years doing research in London, she taught Medieval Art History at the University of Leiden (1979-1983, 1987-1993). In 1993, she was appointed Professor of Medieval Art History at the University of Amsterdam. She has had emeritus status since 2014.

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6

THE LONG SHADOW OF ANTIQUITY
MEDICINE AND PLANTS

Claudine A. Chavannes-Mazel

p 143. ◂◂
St Gall, Cod. Sangallensis 1092 recto, detail of ill.

1. ◂
Dioscorides, *Perì üles iatrichès, De materia medica* and other texts in Greek. Constantinople (Istanbul), presented to princess Anicia Juliana in Constantinople in 512, or shortly thereafter.
Dim. 370 x 312 mm. Vienna, ONB Cod. Med.gr 1, fol. 29v. Plantain.

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600*.
Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_CH06

Abstract
The practice of using plants for medical treatment is as old as is mankind. Classical sources (by Dioscorides, Pliny, and Apuleius Platonicus, as well as the theory of humours by Galen) formed the basis for medieval healthcare. The Hippocratic oath (*c.* fourth century BC) is the earliest expression of medical ethics. Although some medieval recipes are not advisable, others are: people knew the healing potency of hypericum, but were also aware of the poisonous power of hemlock. The quadripartite periodization – monastic medicine / Salernitan medicine / the rise of the universities / scholastic medicine – is based on the relationship of texts to their Greco-Roman sources. Medieval writings like those of Hildegard von Bingen and local vernacular sources were popular in their own time.

Keywords: plants for medical treatment, Hippocratic oath, classical and medieval recipes, *Lorscher Arzneibuch*

Before fake news became common, a professor of surgery and oncology stated in 2016 that there was sufficient medical evidence to support the use of turmeric for pancreatic cancer: 'In cases of cancer of the pancreas, turmeric is more effective than chemotherapy' he said.[1] 'And Brussels sprouts are excellent for these patients', he added. Not all oncologists share his opinion. Be that as it may, vegetal materials have medicinal qualities that have been recognized for thousands of years. Medieval scholars painstakingly copied the classical botanical treatises word for word, thus preserving them for posterity. This chapter will consider the medicinal use of plants from Antiquity until the end of the Middle Ages, on the basis of a selection of texts in medieval manuscripts that have come down to us.

Medieval views on medicine

Reading medieval remedy books may give the initial impression that medical knowledge in the Middle Ages was a farce, full of mythological nonsense, peddled by unreliable, unqualified healers. There are bizarre, even comical prescriptions, such as the examples given in the introduction to this book – swallowing a live mouse as an antidote to poison or tying a bundle of plantain under the chin to alleviate a headache. Both recipes are found in the fourth century herbarium of Apuleius Platonicus. That seems doubly peculiar as the author explicitly warns against charlatans, assuring the reader that he for one will only offer proven remedies. Even more difficult to understand are the magical circles drawn in ninth-century monastic manuscripts with recipes in which the name of the ailing person must be transposed into numbers. Taking into account the phase of the moon, a calculation was made with all manner of additions and subtractions, finally revealing whether the patient would live or die. Leiden University Library has an early tenth-century manuscript in its collection with a drawing of such a Sphere of Life and Death inserted between two more serious medical texts (ill. 2).[3]

Such notions seem unrealistic to us today and it is all too easy to dismiss them as the delusions of a world that has been frequently labelled the 'Dark Ages' and has given the word 'medieval' a negative connotation. Even in academic circles in the nineteenth and twentieth centuries there was considerable disdain about medical ignorance in the past. In the *Dictionary of Greek and Roman Biography and Mythology*, William Greenhill, in 1870, was clear about Theodorus Priscianus from Constantinople, author of *Rerum Medicarum Libri Quatuor* from around 400: 'Several of the medicines that Priscianus mentions are absurd and superstitious.'[4] In 1927 Charles Singer, one of the first scholars to trace the history of herbaria from their beginnings in Antiquity through the centuries, did not hide his opinion either: 'Pliny is less systematic and more credulous than Dioscorides,' he writes, 'and his remedies, while no more effective, are certainly, on the whole, more disgusting.'[5] Take this as you will, it is also true that many people seem to have been very well informed about the exact workings of a great number of plants. The poisoned chalice of Socrates in 399 BCE made from an extract of the seeds of the *conium* plant, more commonly known as hemlock, is perhaps the best-known example. And how strikingly modern the Oath of Hippocrates from the late fifth century BCE still sounds to us today. It was repeated through the centuries as we find for example, in the famous ninth-century German 'Book of Medicine', the *Arzneibuch*: 'In every house that the doctor enters he will only do so in the interest of his

2.
Manuscript anthology with medical texts, such as *De medicina Plinii liber III*, *Sp[h]era apulei, Medicinalia*, etc. France (?), early tenth century.
Dim. 145 x 135 mm. Leiden, UB MS VLO 92, fols. 79v-80r. *Sp[h]era apulei platon[ici].* In addition to formulae concerning the death or survival of the patient, the circle contains the name and birth date of the patient.

patients. He may prescribe no deadly potions, make no sexual advances towards his patients, and everything that he sees and hears while treating his patient is to be kept in strict confidence' (ill. 15).[6] Therefore, it would be more appropriate to look at the prescriptions we find in these old texts not from our modern-day perspective with all that we have learned in the intervening years, but rather by trying to view them in the context of the medieval world and its thought patterns.

After the classical period, a new Christian view emerged, founded on the crucial principle that the world was made by God and that his creation was by definition perfect. This was at odds with Roman and Greek thought and ideas about medicine. The classical tradition was anchored in the Greek philosophers and physicians – Aristotle, Hippocrates and Galen. They formed the foundation for a vision of the world as a large, harmonious system of cosmic proportions, of which humans were part. Authority and tradition dictated the theoretical knowledge. In the first centuries CE, Dioscorides, Pliny and Apuleius Platonicus added the practical knowledge of herbs and plants to the tradition, putting their trust in treatments based on experience, rather than on myth and magic. Latin medicine would continue to follow the authority of their writings for centuries. In contrast, one of the tenets of Christian teaching was that life was a gift from God. This made medieval practitioners ambivalent about active intervention in the course of an illness, even though another Christian tenet was the imperative to care for the sick. Benedictine rule is clear on this last point: 'Before and above everything else, one must care for the sick, so that they are truly served as Jesus himself would have done, for he said "I was ill and you visited me."'[7] Yet, at the same time, healing was in God's hands. The monastic garden was filled with herbs created by God, known to the monks from generation to generation and from which they were permitted to make medicines. They could also practice bloodletting and administer laxatives, or stimulate sweating and vomiting, but that was more or less the limit of the options open to them. In



4.
Apuleius Platonicus, Herbarium, (southern?) Italy, late sixth century.
Dim. 270 x 200 mm. Leiden, UB MS VLQ 9, fols. 41v-42r. *cyclaminos* (cyclamen).

3. ▷
Dioscorides, *Perì üles iatrichès, De materia medica* and other texts in Greek. Southern Italy (?), late sixth-early seventh century.
Dim. 297 x 255 mm.
Napels, BN Cod. suppl. gr. 28, fol. 90r. Female and male mandrake. To their left *myriophyllum* (probably yarrow).

addition, it was imperative that none of the interventions should lead to the death of a patient. Experimentation with medicine entailed risks, which were better avoided, and as a result monastics stuck to the traditional prescriptions.

The rules of Benedict (480-547) on how monasteries should treat the sick followed the classical three-part approach to medical treatment. The first and foremost requirements for a healthy lifestyle were eating and sleeping properly. If this did not suffice, treatment through the administration of medicine could follow. Lastly, there was the possibility of manual intervention or surgery. Cutting human flesh was forbidden for monastics, except for bloodletting, that was a common method of purifying the body of both young and old. In the course of the twelfth century, restrictions were placed on monasteries regarding the practice of medicine, and certainly that of surgery. The Council of Clermont in 1130 forbade medical practice by monastics and canons, a proscription that was extended in 1215 by the Fourth Lateran Council to include all clergy.[8] This constricting vision of medicine would be a determining factor for its development in the Middle Ages.

History of the use of plants in medicine

The history of the medical application of plants runs more or less parallel to that of the understanding of edible plants.[9] Until Hippocrates of Kos (*c.* 460-*c.* 370 BCE), illness was believed to be caused by magic, the work of demons or punishment of the gods. Offerings to the gods would expedite healing and if a god happened to live in a tree, the tree was also deified and deserved the same respect. Hippocrates brought medicine out of the realm of magic and philosophy in the fifth century BCE, laying out the foundation for the theory of the humours, based on the four bodily fluids: blood (sanguis), yellow bile (choler), black bile (melancholia) and phlegm (phlegma). Centuries later, the Greek physician Claudius Galenus of Pergamon (131-201/216 CE), better known as Galen, would systemize Hippocrates's theory and add the four basic attributes of warm, cold, moist and dry.[10] Still later, under the influence of Avicenna (980-1037) and the translations of Constantine the African, the theory of the four humours would become the cornerstone of the medical School of Salerno which was to give a new impetus to medi-



cine in the Latin world. From that moment on, the vision of the four temperaments, the four bodily fluids, the four elements, four life phases, four points of the compass and four seasons would play a dominant role in philosophy and in medicine.[11] It was not coincidental, it was rationalized, that Genesis refers to the four rivers of paradise. Medicine adhered to this pattern in theory, even if actual practice followed its own course. Illness was regarded as an imbalance of the humours in the body. It was therefore logical to presume that the appropriate plant-based remedies or diet would restore the balance. For this reason, plants were also characterized according to the degree of their cold/warm and dry/wet qualities. Paracelsus (1493-1541) was the first to dare criticize this supposition, but it would not be until the seventeenth century that doctors and pharmacists began to cultivate different concepts. With the establishing of the cellular pathology in 1858 by Rudolph Virchow (1821-1902), a German physician and social reformer, the whole concept was finally abandoned.[12] Nonetheless, the hypothesis of the humours lives on into modern times in the anthroposophist writings of Rudolf Steiner, for example, and is still in evidence when we refer to someone as sanguine or choleric, melancholic or phlegmatic.[13]

Dioscorides's *De materia medica*

Before the theory of the humours was applied to medical ideas in the West, both written and oral remedies were based on experience, conviction and belief. The most serious botanist from Antiquity, the Greek Theophrastus, was known in the Latin Middle Ages, albeit to a limited degree, alongside other authors in compilations, until his work was translated from Greek in 1481. The most important, and certainly most fre-



quently cited source for Western medicine was a work originally written in Greek by Pedanius Dioscorides, known in its Latin translation as *De materia medica*.[14] Dioscorides (*c.* 40-90) lived during the time of the Roman emperors Nero and Vespasianus. He was born in Anazarbos, in what is now Turkey. Trained as a physician, he travelled around Greece, Italy, Asia Minor and Provence. During these journeys he recorded his botanical findings and noted more than 600 plants and their medicinal effect. In the course of the sixth century his *magnum opus* was translated into Latin and gained the status of a standard work that would be consulted endlessly by later generations.

In contrast to classical literary texts and patristic opera that, beyond the errors of an inept copyist, theoretically underwent little or no change throughout the centuries, plant books were practical sources that a reader could add to and improve on. As a consequence, different copies of *De materia medica* often varied greatly in content. In the most famous Dioscorides copy, known as the Vienna Dioscorides, eleven chapters from the herbarium of Crataeus, the root-gatherer and court physician to the king of Pontus, Mithridates VI Eupator (120-63 BCE) were added. Excerpts from Galen were also woven in (see Chapter 1, pp. 36-39). It should not come as a surprise that plants varied according to the area in which they grew and that they had varying names in different languages. In some of the copies of Dioscorides the plants are organized alphabetically, rather than according to their characteristics such as smell or root shape.

As far as the medical advice offered by Dioscorides is concerned, it is both superficial and surprisingly practical and clear in several areas. He hardly ever specifies amounts, except for a cup of wine occasionally, and it is up to the reader to determine for example at what dosage cyclamen becomes poisonous. The descriptions, in contrast, indicate precisely what part of a plant must be taken for the best effect and how it should be prepared – ground, boiled or dried. The 'location', *i.e.* the part of the plant that was to be used, was clearly of great importance.

A number of examples illustrate this. Firstly, we have the plantain (Book II, 126), the all-purpose miracle plant (ill. 1).[15] Dioscorides briefly discusses the two types of plantain and specifies the greater plantain as most beneficial. According to him, its leaves can staunch blood and have dehydrating properties, which make them good as compresses on open



5. ◁
Apuleius Platonicus, Herbarium, France, tenth century. Dim. 235 x 170 (190 x 140) mm. The Hague, MMW MS 10 D 7, fols. 48v-49r. *herba gentianae* (Gentian) en *herbae cyclaminos* (Cyclamen).

6.
Anthology with Apuleius Platonicus, Herbarium, France, early eleventh century. Dim. 258 x 180 mm. Leiden, UB MS VLQ 13, fol. 12v. *cyclaminos* (cyclamen).

7.
Apuleius Platonicus, Herbarium, southern Germany, 1075-1100. Dim. 265 x 170 mm. Leiden, UB MS VLQ 40, fol. 15r. *cyclammenos* (cyclamen).

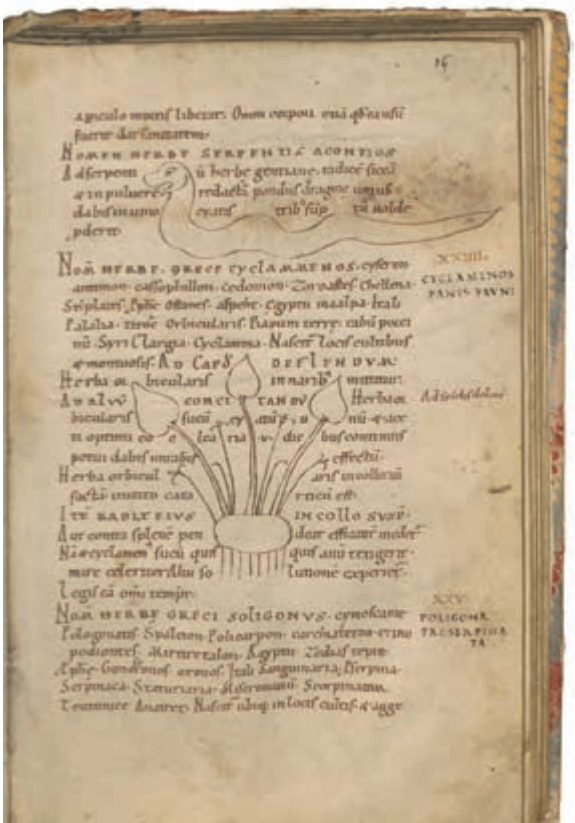
wounds. Plantain is also useful for elephantiasis sufferers. In addition, as they halt bleeding, the leaves are helpful in the treatment of boils and ulcerating sores. Combined with salt, it is effective for dog bites, burns, tumours, etc., and when boiled with salt and vinegar, it is beneficial in cases of dysentery and colic. Epileptics, asthmatics and people with *anasarca* (oedema) may all find relief through plantain. The extract from its leaves can be used as mouthwash against ulcers and also for ear and eye problems. The seeds can cure diarrhoea and inhibit the vomiting of blood when inebriated. The roots of plantain relieve toothache. It can help even in the case of third and fourth fever. It is not exactly clear what third and fourth fevers are, but three roots and three cups of wine (*cyathoi*) and the same amount of water cure a third fever, while unsurprisingly, four roots will cure a fourth fever. Some people, Dioscorides adds as a final observation, even use the roots as amulets against swollen glands.

A second example is couch grass (Book IV, 29; *agroostis* in Greek, *gramen* in Latin, see Introduction), known to every gardener as a tenacious variety of crab grass. Its curative powers are less impressive than those of plantain, but it offers help for a number of ailments. Its roots can be ground and made into a thick paste that will close the skin when applied to wounds. As an extract, it is an effective remedy in cases of difficult urination; it soothes the pain in the region of the bladder and breaks down kidney stones.

Another plant with completely different but exceptional properties is the cyclamen (Book II, 164). Cyclamen can do wonders. Taken with water and honey, it will bring about menstruation or drain phlegm. A pregnant woman should be wary, mind you, as stepping over a cyclamen root will certainly cause a miscarriage, or so it is said. Similarly, when cyclamen is rubbed over the navel of a pregnant woman whose baby is overdue, it can induce the birthing process. Cyclamen can be poisonous but does help with snake bites.

As for the famous mandrake (*mandragora*) (ill. 3, p. 149), there is a plethora of information, both medicinal and otherwise (Book IV, 75). Dioscorides provides a good description of the plant. The leaves lie flat on the ground and the yellow-green berries are as round as a marble and smell delicious. The plant has large, dark, almost black, double or triple roots that wind around one another. The roots can be





used as a love potion, but one should not overdo it. A shepherd who happens to eat the sweet-smelling berries will end up stiff and cold. In the case of sleeplessness, a concentrated infusion made from the roots is helpful. A patient suffering from pain after an operation should be given an extract of mandrake but not too much, because that would be fatal. The leaves are almost equally beneficial as fresh leaves mixed with barley are good for infected eyes and abscesses.

Dioscorides's work continued to be printed and circulated in various versions and languages until the seventeenth century. It was cited extensively in the printed herbaria by other authors, usually with the mention of his name as a source, so as to emphasize the indisputable authority of the text. A famous example is the seventeenth-century English-language reprint of an English *Herball*, that was based to a great extent on Dioscorides. It continued to be used in the English countryside well into the nineteenth century, remembered by an old man as late as 1912.[16] Additionally, in the reprint of Lonicerus's *Kräuterbuch* of 1783, Dioscorides is named in almost every entry, and the plantain is still described as 'of a more or less cold and dry nature'.[17]

Pliny's *Naturalis historia*

The second text that was a source for later compilations of medical knowledge of plants in the western world, is the *Naturalis historia* by Pliny the Elder (23-79), which he wrote shortly before losing his life at the eruption of Mount Vesuvius in 79 CE. A book with more conviction and faith than experience, perhaps, the *Naturalis historia* is an encyclopaedia of useful knowledge about nature and its great healing powers.[18] In the preface, Pliny addresses his friend, the future emperor Titus, with a couple of sweeping statements about life and nature: '*rerum natura, hoc est vita*' – 'Nature, that is to say life, is described here', he writes, [19] and immediately thereafter: '*vita vigilia est*' – 'for life properly consists in being awake'.[20]

He follows Aristotle in dividing nature into three categories: humans and animals (living beings), plants (living, but without being) and minerals and stones (without life, without being). Starting in Book 12, he deals with all aspects of trees and plants, and Books 20-27 concentrate on medicinal herbs and plants. He gives a list of 900 remedies – or rather, interesting facts – concerning plants, some of which he borrowed from translations of Theophrastus and some from Dioscorides. We may have our doubts about a number of his pronouncements. For example: 'Grape-stones cause a headache if you are drinking wine, but are good for the stomach when roasted and finely ground.'[21] Or: 'Very old walnuts cure gangrene, boils and bruises'[22] and: 'The down on the skin of quinces heals boils.'[23] His remedy for inflammatory tumours is abominable. *Panaces*, applied with honey, will heal the tumours, he writes, and it is of primary importance that the application should be made by a maiden. The maiden should also be naked when she makes the application, and fasting: 'The damsel must say, touching the patient with the back of her hand "Apollo forbids that a disease shall increase that a naked virgin restrains".'[24] Despite such questionable recommendations, Pliny shows good sense and insight in other instances, when he warns about opium for example, as a useful sedative but deadly in large doses.[25]

He too devotes considerable attention to the mandrake. In Book 25 he attributes the same or similar characteristics to it as Dioscorides and adds 24 applications.[26] Not that these are remedies of his own making, for Pliny adopts them for the





8. ◁
Apuleius Platonicus, Herbarium.
The Hague, MMW MS 10 D 7, fols. 25v-26r.
fol. 25v: *gramen* (couch grass)
fol. 26r: *gladiolum* (gladiolus).

9.
Apuleius Platonicus, Herbarium, Leiden, UB MS VLQ 40, fols. 29v-30r. fol. 29v: *edygeron* or *senecium* (ragwort); fol. 30r: *agrostis* or *gramen* (couch grass) and *filix* (fern, male).

10.
Apuleius Platonicus, Herbarium, France, late thirteenth century. Dim. 220 x 164 mm, Leiden, UB MS BPL 1283, fols. 22v-23r. Fol. 22v: *filix* (fern, male); fol. 23r: *agrostis* or *gramen* (couch grass) and *gladiola* (gladiolus).

most part from the same (unknown) sources as Dioscorides. The same is the case for the cyclamen, although his comments are more extensive than those of his predecessor. Just as Dioscorides, he maintains that 'it is said that a pregnant woman should not step over the root of a cyclamen as that will cause a miscarriage' and 'it is said that the root when added to wine is poisonous'. Yet at the same time, he too relates that the root can be used as an amulet and is good for snake bites. After the root has been burned, the ash can be made into a paste with the fat of a young, female black piglet that has never given birth. This concoction is an effective remedy for hair loss, provided the paste is applied to the skin in the full sun (Book 24, 84). Mixed with honey and inserted into the nostrils, cyclamen relieves headaches. He continues: plantain is good for no fewer than 46 ailments. Couch grass is only given one folkloric application: one stem with seven shoots wrapped around the head relieves a headache.

Pliny's encyclopaedia was widely read in Latin by the literate in Europe. Illustrations were not necessary. In the fourth century, his name was associated with a new, shorter and popular pharmacopoeia, even though Pliny himself had nothing to do with it. It was called simply *De medicina Plinii* and contained more than 1100 remedies. The compiler recommends taking this work along while travelling; armed with its knowledge, one could combat the frightful witches, who sell useless preparations at exorbitant prices.[27] Leiden University Library has an early tenth-century unillustrated copy (MS VLO 92) in its manuscript collection, that we referred to earlier in connection with its magic circle (ill. 2, p. 147).[28] In addition to this work, almost all medieval authors made use of Pliny's *Naturalis historia* for their own compilations.

Galen's *De simplicibus*

Galen (131-*c.* 200) lived a century later than Pliny. Originally a physician for the gladiators of Pergamon, he later became the personal doctor of the Roman Emperor Marcus Aurelius and his followers Commodus, Septimius Severus and Caracalla. He published hundreds of books and was an important figure in the history of medicine for many reasons, among them the further systematization of the hypothesis of the temperaments, or humours.[29] His work *De simplicibus*, originally written in Greek ('on simplicia', natural ingredients used on their own) describes 540 vegetable, 180 animal and 100 mineral medicines. It was Galen who categorized plants according to the degrees of warm versus cold and wet versus dry. Garlic, for example, is hot in the fourth degree and dry in the third degree, whereas onions are hot in the fourth degree and wet in the first degree.





12.
Apuleius Platonicus, Herbarium, southern Italy (Monte Cassino), early ninth century. 235 x 165 mm. Florence, BML MS Plut. 7341, fol. 93v. *mandragora* (mandrake).

11. ▷
Apuleius Platonicus, Herbarium, France (Loire region), second half ninth century. Dim. 285 x 210 mm (page dimensions before the fire). Kassel, UB 2o MS phys. et hist. nat. 10, fol. 34v. *mandragora* (mandrake).

His works were not translated into Latin until the twelfth and fourteenth centuries. This may be the reason why Galen's assignment of characteristics did not show up in Latin plant-based prescriptions for remedies until at least 1050, surprising as this may seem. No reference is made to the qualities of hot/cold, warm/wet until the *De viribus herbarum* by Macer Floridus in the late eleventh century. We do not find these qualities mentioned in Apuleius Platonicus's work or in that of Anthimus. They are not included in the *Lorscher Arzneibuch*, or in the *Hortulus* of Wahlafrid Strabo (discussed in the Introduction).

The herbarium of Apuleius Platonicus

Pliny and Dioscorides laid the foundation for almost all of the later herbaria up to the Renaissance. Together with Dioscorides' *De materia medica*, the herbarium of Apuleius Platonicus was the most frequently cited plant book in the Middle Ages. Who this Apuleius Platonicus (or Pseudo-Apuleius) may have been is not known.[30] In all likelihood he lived in southern Italy at the end of the fourth century and should not be confused with the Apuleius who wrote the *Metamorphoses, or The Golden Ass* in the late second century. For his herbarium, Apuleius Platonicus leaned heavily on Dioscorides and Pliny, even though in his preface he assures the reader that he has only included well-tested remedies. His herbarium was exceptionally popular from its first appearance through to the late Middle Ages. Written in Latin, Apuleius's book is not as lengthy as that of Dioscorides, and the plants are arranged clearly and alphabetically. Monasteries eagerly copied his work for their libraries and about sixty medieval illustrated copies of his herbarium are still extant. Five of them have found their way into Dutch collections. The recipes considered below were illustrated with miniatures in those manuscripts, and date from the tenth to thirteenth centuries.

Like Pliny and Dioscorides, Apuleius Platonicus inexplicably mixes serious prescriptions with folklore. It is clear that some of the suggestions are truly useful and practical, whereas others stem from magic. The text regarding plantain is transcribed and translated in Appendix I. But how did he treat cyclamen, couch grass and the famous mandrake?

Cyclamen (ills. 4, p. 147; ill. 5, p 150; ill. 6 & 7, p. 151) has lost some of its prestige in Apuleius's work as he prescribes it for only three ailments. First of all, he recommends it as a decongestant for a stuffy head (catarrh) – '*ad caput deplendum*', which literally means 'to empty the head' or 'for an empty head'. This has led some to believe it was meant as a remedy for baldness. Just like Pliny, Apuleius prescribes taking the juice of the plant mixed with vinegar and pouring it carefully into the nose. Cyclamen is also useful against constipation as a salve made with it and applied around the anus works very quickly. Lastly, it is recommended for a painful spleen, in which case a mixture of cyclamen sap and vinegar should be drunk for nine days. Alternatively, the root can be hung as an amulet around the neck so that it hangs over the spleen, which is especially effective.

In comparison to older remedy collections, couch grass (*gramen*; ills. 8, p. 152; 9 and 10, p. 153) is less popular here. Nonetheless, it is believed to be beneficial for spleen complaints; it should be boiled and the resulting liquid used to soak a cloth to place on the spleen. In the case of weepy eyes,




34v

13.
Apuleius Platonicus, Herbarium, southern Germany, 1075-1100.
Dim. 265 x 170 mm. Leiden, UB MS VLQ 40, fol. 49v. *mandragora* (mandrake).

14. ▷
Tractatus de herbis, Platearius's *De simplici medicina*, Italy (Salerno), *c.* 1280-1310.
Dim. 360 x 240 mm. London, BL MS Egerton 747, fol. 61r. *Herba mandragora – meum athamanticum* (mandrake and mountain fennel).

trifoliate couch grass should be plucked at the time of the waning moon and very promptly bound around the neck.

The mandrake (ills. 11-14, pp. 154-157) is a different matter altogether. Although it is just a normal plant, it is surrounded by a myriad of mythical stories.[31] Satan's Apple, Sorcerer's Root, Hand of Glory, Herb of Circe, the plant has had many names over the centuries, all referring to its fabled powers, most of which have something to do with sex or sorcery. Other legends tell us that it utters a blood-curdling scream when uprooted, that there are both male and female types, that its leaves light up in the dark and that it has the divine power to kill anyone who touches it. The description of the mandrake is not found in the oldest versions of Apuleius Platonicus's herbarium, but only in later ones, which indicates that it was not part of the first version. Moreover, it is also the last plant in the text to be discussed.[32]

Actually, these magical qualities were originally attributed to a completely different plant, an unknown mysterious specimen recorded in the first century CE, known as baäras. Flavius Josephus describes it in detail in his book *The Jewish War* (Book VII, 6, 178) dating from about 75 CE.[33] Touching the baäras is deadly, he writes, and requires a special technique to uproot. One digs around the plant and ties a rope to its roots, fastening the other end of the rope to a hungry dog. One gets the dog to pull the plant up by enticing him away with a piece of meat. Unfortunately, the dog dies, but that's the price one has to pay. The plant is in great demand for its ability to drive out demons. In the illustrations of the Apuleius Platonicus herbarium, the dog is generally an important part of the picture (ills. 11 & 13). In the following centuries other characteristics came to be attributed to the mandrake, some of which were borrowed from another mysterious, unidentifiable plant, the cynopastus.[34] The roots utter a blood-curdling shriek so horrible that when the plant is dug up, whoever hears it dies. To avoid death, at the moment of extraction one must cover one's ears or blow on a horn to protect oneself. This story came to be attached to the mandrake. Right up until modern times and Harry Potter, the mandrake has been assigned dangerous, human characteristics.

Once the plant is dead and dug up, it transfers its magical power to humans. Since the roots resemble the human figure, the myths lent the plant powers related to sex and witchcraft. The fruit of the mandrake are called love apples, because they were believed to be an aphrodisiac. Long before Flavius Josephus, the plant is mentioned in Genesis of the Old Testament. Rachel asks her sister Leah, both of them wives of Jacob, to give her the *mandrakes* that Leah's son Ruben had found in the field that day, hoping that they will help her become pregnant. (Gen. 30: 14): 'Please give me some of your son's mandrakes.' In the Song of Solomon, *the mandrake* comes up again when the bridegroom attempts to entice his bride into the garden: 'There the mandrakes give off their fragrance and the finest fruits are at our door, new delights as well as old, which I have stored up for you, my beloved' (Solomon 7: 13) (see also the chapter by Linda IJpelaar p.182 ff.).[35]

Many stories appeared throughout the centuries. According to all accounts, the plant is a hallucinogen or an aphrodisiac, or both. Machiavelli wrote a comedy in the early sixteenth century entitled The Mandrake, in which every woman who drinks a love potion made from the plant becomes pregnant. Unfortunately, the fate of the man who had impregnat-





Nomē herbe mandragore.

iungatur calore febrilem reprimit. C̄ cal̄ida aplicata fiat ī uctio exolō ipiapi o reprimit cū m̄. fructus eiꝰ ul̄ folia sup cataplēctur ul̄ salter succus cū cū succo alicui herbe fric. C̄ fluxui uctris ecipi tu colice ex olō predicto uenit ertota spi na iungatur et modicū iungatur aliquo cristeri lemi. No. q mādragora alu uocāt antimmō alu Inveopomoreos alu Ap pollea. semē ei dī Abbaloos.

er̄ioucatur frons et tipora. C̄ col capit ercal folia mādragore tra suptempora pū tur. Iungat etiā old mādragorate. q sic fit poma mādragore trita olō cū eis macerentur. sēa fiat fiet aliqtula ūctio colētur et illō dr olim mādragoratū. q ualet ad sopnū puocē. ꝛ col capīs et cal cū sifros ꝛ tipora iungatur. Si uō plūs

Mā ca ē ꝛ sic i so g. aī nidix simila noie appellat alio noie uocāt atamā ticum alu uocāt Sistra ſ alia herba ē et

ed her is no better than that of the dog; within eight days he will die. Shakespeare brings the plant to the stage on a number of occasions. In *Romeo and Juliet*, Juliet includes them in her list of terrors: 'And shrieks like mandrakes torn out of the earth / That living mortals hearing them, run mad.' Other references in Shakespeare allude to its extraordinary qualities, as a soporific: 'Give me to drink mandagora that I might sleep out this great gap of time,' or a deadly poison: 'Would curses kill, as doth the mandrake's groan.'[36] From Goethe to the 1952 horror film *The Unnatural* (a remake of the 1928 silent film *Alraune,* based on the book *Alraune, die Geschichte eines lebenden Wesens* by Hanns Heinz Ewers), the mandrake has continued to fascinate and frighten. The inclusion of the mandrake in Apuleius's herbarium played an important role in spreading the stories about its mythical characteristics.

Lorscher Arzneibuch

Pliny wrote for the layman and he did not provide real prescriptions. His classic gems of wisdom were not always particularly substantial. The same holds true for Apuleius Platonicus. The elegant poem of Wahlafrid Strabo with its 24 medicinal herbs, engaging as it is, was not a serious source of information for the infirmary of a large monastery. If we compare all of these to the 600 plants listed by Dioscorides, we can only conclude that there must have existed more literature on the subject, which is now lost. We have one indication of this in the remarkable Carolingian compendium from the ninth century that has fortunately come down to us. It is made up of balanced remedies taken from practical experience and is known as the *Lorscher Arzneibuch*, a pharmacopoeia written at the German monastery of Lorsch for its monks.[37] The foreword to the book, with its Christian defence of the practice of medicine, is treated here in the Introduction (ill. 15, p. 141). The compiler of the *Arzneibuch* ends his work with a quotation from Cassiodorus: 'And thus, learn the healing power of herbs and the differences between them, but do not place all your hope in herbs, nor in the safety of the human eye. For although medicine is a God-given gift, it is God who gives us life.'

The core of the book consists of five *capitulationes*, or chapters, with prescriptions. They are the only record we have of this type of knowledge and historical practice and the reason why the manuscript has been placed on the World Heritage list. At the beginning of the manuscript (fol. 17r) there is a short explanation of the four humours that flow through the human body, but apart from this, the practical remedies listed sound as though they could be proposed today. Instead of general advice as given by Pliny and Dioscorides, actual prescriptions are recorded, complete with weights and measures. Take, for example, the recipe for a healing drink for a stomach ache: 'Take 2 drachmas of saffron, 2 drachmas of pepper, 2 drachmas of white horehound juice (*marrubium*), and sufficient garlic. Crush this fine then mix it all with a little honey. This should be diluted with water and drunk.'[38] (One drachma is equivalent to two tablespoons.)

One of the best-known prescriptions is a salve for venous ulcers (*ulcus cruris*) (Cap. 2, no. 121, fol. 31v), made from a mixture of a number of ingredients, including honey and cheese, a combination that has the same effect as penicillin. Another prescription contains *hypericum* (St. John's wort), that was used for people suffering from confusion or other mental afflictions (Cap. 3, no. 75, f. 53v).[39] This is not without scientific foundation. The chapter by Jan-Willem Briët (p. 266) explains more about the medical properties of *hypericum*. The *Arzneibuch* seems to have been ahead of its time and certainly ahead of the developments that would take place in medicine after the eleventh and twelfth centuries.

The Influence of the School of Salerno

The changes that we see in plant books written in southern Italy between around 1050 and 1250 had to do with a changing public and a broader group of readers. In the early Middle Ages, these books were produced just for monastics, who did not set foot outside the monastery, who knew the plants in their gardens and made use of them according to traditional methods to prepare age-old remedies. Now, in the high Middle Ages, a different type of medical specialist was emerging from the new universities and Arab intellectual centres, doctors who had an international vision and who undertook research themselves. For the first time since Dioscorides and Apuleius Platonicus, a new kind of plant book came into being, intended for a different audience of professionals and laymen who wanted to know what a given plant actually looked like and this required adequate illustrations. Even though the works of Pliny, Dioscorides and Apuleius Platonicus continued to provide the core material for the compilation of plant books, new texts were beginning to strike out in new directions, such as the poem by Macer Floridus and translations of Galen by Constantine the African. The *Canon of Medicine*, written by the Persian scientist Ibn Sina, otherwise known as Avicenna (980-1037), provided the foundation for the School of Salerno, on which education in Europe was based right up to the seventeenth century.

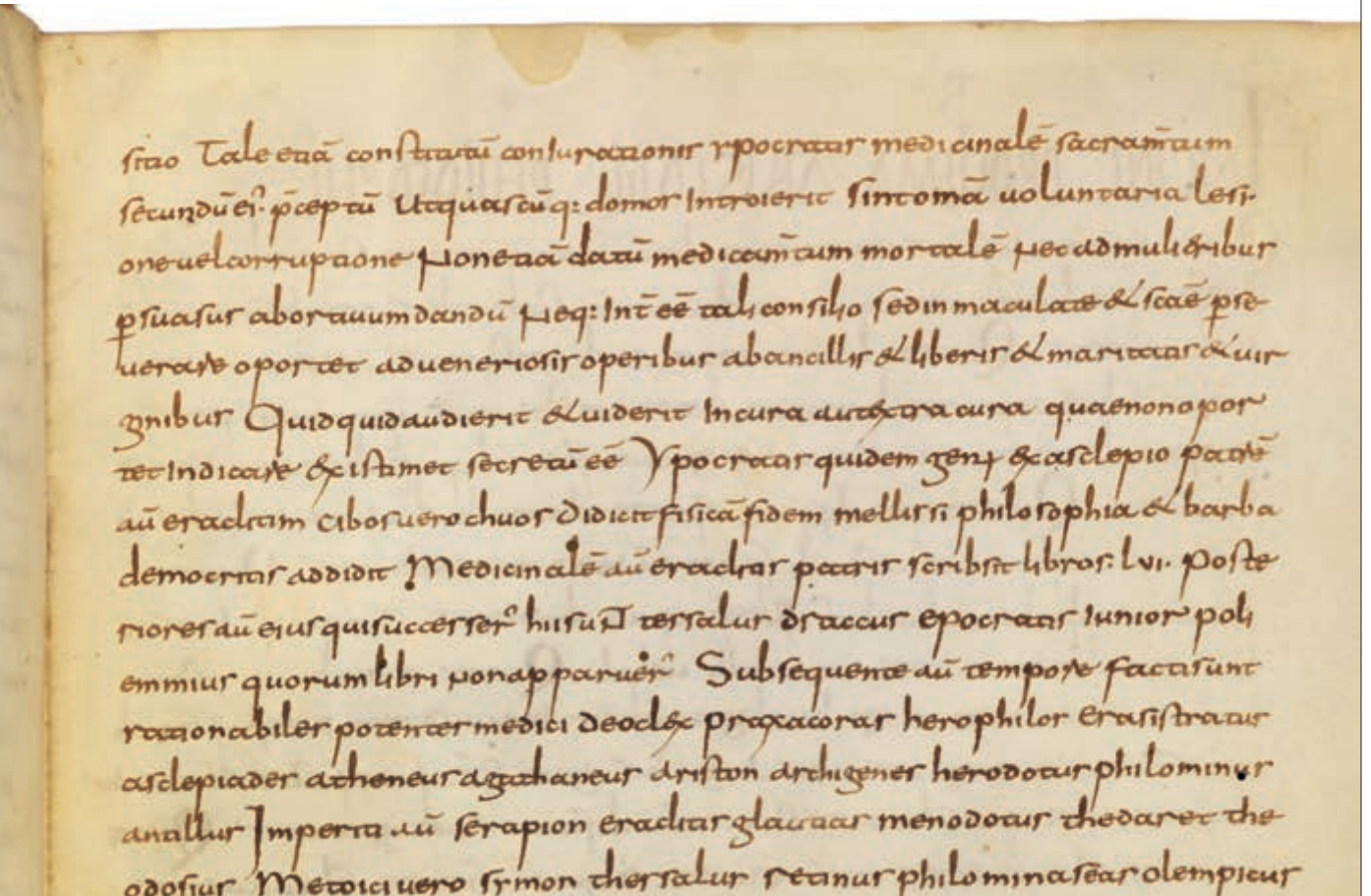
One known collection of pharmacological texts from the School of Salerno is the *Tractatus de herbis*, dating from about 1300. The oldest known copy, now found in the British Library (Egerton 747), is beautifully illustrated (ills. 14 and 15, pp. 29-30; ill. 23, p. 52).[40] We wish that we knew who assembled the texts, but unfortunately, the name Bartolomeus Mini de Senis is now found in the manuscript, written over another name that can no longer be deciphered. The *Tractus de herbis* begins in Latin with the words '*Circa instans negotium in simplicibus medicinis*' and continues by explaining that a medicinal '*simplum*' is a remedy or product that is used as it is found in nature. It consists of the plant, or just its leaves, flowers or roots. The text is referred to as the '*Circa Instans*' and was compiled in the twelfth century by the physician Mattheus Platearius of Salerno (d. 1161). It also draws upon numerous earlier sources and Dioscorides and Apuleius Platonicus are repeatedly mentioned. The treatise contin-

15.
Manual with medical texts, 'Lorscher Arzneibuch'. Lorsch, *c.* 800.
Dim. 320 x 230 (260 x 185) mm. Bamberg, SB Cod. Msc.Med.1, fol. 6r. Text with explanation of the Hippocratic oath. Translation from the Latin: 'Such a provision also includes the medical Hippocratic oath, according to which the physician should enter each house free of hideous injustice or pernicious action. He should not supply a deadly medicine, nor allow himself to be persuaded by women to prescribe medicine to cause abortion. In this matter, he should not give advice, but remain pure and holy. He may not contemplate sexual actions, neither with virgins nor women, or with married women. Anything that falls outside the scope of treatment and should not become common knowledge, he should keep secret'.

ues with a discussion of medicines made up of multiple ingredients (the *Antidotarium Nicolai*) and of amounts, weights and measures, plus synonyms and other additions gleaned from many diverse sources.[41] The degrees of wetness/dryness, warmth/coldness are given for each plant. Now and again the saying of three *Paternosters* or three Hail Marys is recommended, as in the treatment of fistulas with agrimony.[42]

The School of Salerno marked the beginning of a scholarly approach to medicine in the universities. The knowledge available there, expanded and passed on by means of manuscripts and later, printed works, would continue to have sway until the sixteenth century. However, it would be a long time before medicine would break loose from its classical roots. For centuries, the doctrine of the humours with its strict instructions for the use of plants would remain an important pillar of medicine as it was taught in Salerno, Toledo, Montpellier, Bologna and elsewhere. All of the entries in herbaria in the fifteenth and sixteenth centuries would continue to specify to what degree the plant was warm/cold and wet/dry. That continued until deep in the eighteenth century.[43]

The four humours and Hildegard von Bingen's *Physica*[44]
Thanks to the Salerno School, the theory of the humours became imperative. Hildegard von Bingen (1098-1179) was one of the first in the West to argue that plants, birds, animals, water and even stones, can be all characterized as hot or cold, and dry or wet: 'Every stone contains fire and moisture. The devil abhors, detests and disdains precious stones. This is



p 163. ▶▶
Leiden, UBLWHS VLQ 40,
f. 049v, see ill. 13.

because he remembers that their beauty was manifest on him before he fell from the glory God had given him.'[45] It is not surprising that gold was seen as hot and silver and led as cold. Many of these and similar descriptions and prescriptions have no classical source. In her *Physica*, plantain for instance, reveals un-expected merits, different from the classical qualities:

Plantain is hot and dry. [...] If a person eats or drinks a love enchantment, then plantain juice, with or without water, should be given to him to drink. Later, he should take some strong drink, and he will be purged inside and be relieved. If, however, a bone is broken by a fall, one should cut up plantain in honey. He should eat it daily, before breakfast. He should also gently cook the green leaves of mallow and five times as much plantain leaves or root in water in a new pot. He should frequently place these, warm, over the injury, and the fraction boon will be healed.[46]

With mystics like Hildegard, a new horizon opened, albeit that her influence did not last long. In post-medieval thought, there was no place for her. Thus, the quadripartite periodization sketched out more than one hundred years ago – monastic medicine / Salernitan medicine / the rise of the universities / scholastic medicine – was based on the relationship of texts to their Greco-Roman sources. Hildegard was certainly not the only one to deviate from this well-trodden path. Today we have to include her views and those of others from non-classical sources in order to arrive at a more realistic view of the history of medieval medicine.

Hildegard was more than an original writer and composer. She has also become a figure of reverence within the contemporary New Age movement, mostly because of her holistic and natural view of healing, as well as her status as a mystic. However, this is not the place to dwell upon her popularity among modern feminist scholars.

Medieval Dutch *herbarijs*

Over time, the medical treatises of the School of Salerno came to be translated and annotated. Pharmacists made copies for themselves and for students or friends. The '*herbarijs* in Dyetsche' (herbal in Dutch) came into being 'for some friends', we read in the fourteenth- century manuscript now housed in the Royal Library in Brussels (MS 15624-15641).[47] The *herbarijs* is one of the texts in a compilation of Middle Dutch medical texts. It was copied in 1351 by Jan van Aalter, about whom nothing is known except that he writes in a west Brabant dialect.

The *herbarijs* is one of the oldest botanical-medical treatises in the Dutch cultural legacy.[48] The first sentences reflect what was then commonly believed to be important:

Here in this Book you will learn the teachings of Dioscorides, the wise teacher and of *Circa instans*, the wise teacher, who have made this book that is called herbarijs. It teaches about all the herbs that are used in medicine and surgery that are beneficial for the body to ward off illness and to maintain health.

And you will learn in this book the nature of herbs. That is to say, how complicated they are, which are cold or hot, which are dry or wet and to what degree.

And you will learn in what manner they work by their nature in the body. That is to say some are hot and others cold, others dry and others wet, in the first degree, others in another degree and others in the third degree and others in the fourth degree and no higher degrees are given to them.[49]

It is clear that Dioscorides from the first century along with the author of *Circa instans* (i.e. Mattheus Platearius) from the twelfth century, were still considered in 1351 as 'wise teachers', the authorities to whom one turned.

Conclusion

In the long years from classical antiquity to the late Middle Ages, medical science gradually broke loose from its Roman past through the influx of new ideas. Of course, the classical heritage left traces in many, remarkable ways. An essential element of the Italian Renaissance was the rediscovery of classical Antiquity and its ideal of natural beauty, to be achieved in art through the artist's own observation. But medical science was stunted by the classical tradition and its resolute belief in Galen's theory of the humours. This was an impediment that continued to block the evolution of independent observation until deep into the sixteenth century. Only then was it possible to let go of the classical heritage, or at least parts of it, and develop independent thinking based on personal observation and reflection.

NOTES

[1] A. Scheulderman, 'Omdat je leeft, krijg je kanker (Why do you get cancer? Because you are alive). Interview with Caspar van Eijck', in: *Volkskrant Magazine* 776 (19 March 2016), pp. 12-17. Thousands of hits can be found in the field of medical research about such topics as *Curcuma longa* at PubMed of the National Center for Biotechnology Information https://pubmed.ncbi.nlm.nih.gov. Among the many studies on medieval medicine, see M.D. Grmek & B. Fantini (eds.), *Western Medical Thought from Antiquity to the Middle Ages*. Cambridge, MA, 1998.

[2] With thanks to Catrien Santing for reading this article and for her comments.

[3] H.E. Sigerist, 'The Sphere of Life and Death in Early Mediaeval Manuscripts', in: *Bulletin of the History of Medicine* 11 (1942), pp. 292-303, provides a clear explanation. He does not mention VLO 92. Idem, 'The Latin Medical Literature of the Early Middle Ages', in: *Journal of the History of Medicine* 13:2 (1958), pp. 127-146, in particular pp. 145-146. Sigerist also found the circle in missals, although he does not say where. On Leiden UB MS VLO 92 see K.A. de Meyier, *Codices Vossiani Latini III Codices in octavo*. Leiden 1977, pp. 171-173; L.E. Voights, 'The Latin Verse and Middle English Prose Texts on the Sphere of Life and Death in Harley 3719', in: *Chaucer Review* 21 (1986), 291-305. The majority of spheres are found in Anglo Saxon manuscripts, see R.M. Liuzza, 'The *Sphere of Life and Death*: Time, Medicine, and the Visual Imagination', in: K. O'Brien O'Keeffe and A. Orchard (eds.), *Latin Learning and English Lore: Studies in Anglo-Saxon Literature for Michael Lapidge*, Vol. II. Toronto 2016, pp. 28–52.

[4] W.A. Greenhill, 'Theodorus Priscianus' in William Smith (ed.), *Dictionary of Greek and Roman Biography and Mythology*. Boston 1870, vol 3. In the public domain. Priscianus' *Rerum Medicarum* was recently publshed and translated by Kai Brodersen, *Theodorus Priscianus: Naturheilkunde*. Berlin 2020.

[5] Ch. Singer, 'The Herbal in Antiquity and its Transmission to Later Ages', in: *The Journal of Hellenistic Studies* 47:1 (1927), pp. 1-52. The quotation is found on p. 34.

[6] The Lorscher Arzneibuch, Bamberg Staatsbibliothek MS Med.1, fol. 6r. See U. Stoll & G. Keil (eds.), *Das Lorscher Arzneibuch. Ubersetzung* [...]. Stuttgart 1989. The manuscript can be found in its entirety on the Internet; see note 37 and ill. 15.

[7] Line 36. The Benedictine rule can be found online in various languages and translations, see for example: http://www.intratext.com/X/DUT0023.htm.

[8] D.W. Amundson, 'Medieval Canon Law on Medical and Surgical Practice by the Clergy', in: *Bulletin of the History of Medicine* 52:1 (1978), pp. 22-44.

[9] M. Wallis (ed.), *Medieval Medicine. A Reader*. Toronto 2010.

[10] Many classical texts can be found online in the *Corpus medicorum graecorum/latinorum*. For Hippocrates and Galen, see for example http://cmg.bbaw.de/epubl/online/editionen.html. The Latin Celsus, Apuleius Platonicus, etc. in: http://cmg.bbaw.de/epubl/online/publicml.html.

[11] The temperaments are dealt with in more depth elsewhere is this book, but for those who wish to have a grasp of the theory, we offer a brief explanation. The four elements were air, fire, earth and water, to which the four fluids or humours of the human body were related. These were blood (sanguis), yellow gall (cholera), black gall (melancholia) and phlegm (flegma). Each of these four corresponds to one of the four qualities of things: warm, dry, cold and wet. The blood is warm and wet, the dominant qualities of spring; yellow gall is warm and dry just as the summer; black gall is characterized as cold and dry, the dominant qualities of autumn, and the fourth season, winter, is dominated by phlegm, or cold and wetness. The four elemental qualities warm-cold and dry-wet are the link between the basic fluids and the seasons. In this manner, the parallel between micro and macrocosm is integrated into a system that was based on the four Greek natural philosophers, the ideas of Galen and the authorities of Arabic medicine that were further elaborated and disseminated above all by Avicenna in his Canon. N. Arikha, *Passions and Tempers. A History of the Humours*. New York etc. 2007.

[12] S.A. Edwards, 'Rudolph Virchow, the Father of Cellular Pathology', in: *AAAS-The American Association for the Advancement of Science,* www.aaas.org

[13] Arikha, op.cit. (n. 11) offers an excellent survey of the theory of the temperaments of the classical Greek philosophers, via the Arab world, and up to today.

[14] M. Cronier, *Recherches sur l'histoire du texte du Materia medica de Dioscuride*. [Thèse de doctorat Université de Sorbonne EPHE Paris] 2007 (http://www.theses.fr/2007EPHE499D).

[15] *Pedanius Dioscorides of Anazarbus De Materia Medica*. L.Y. Beck (transl.), Olm etc. 2005, pp. 145-146. An English translation based on the edition of 1655 was published in 1933. A new indexed edition was published by T.A. Osbaldeston and R.P.A. Wood in 2000 and can be found online: http://www.panaceavera.com/demateria-index.html

[16] A. Arbor, *Herbals, Their Origin and Evolution: A Chapter in the History of Botany 1470-1670*. Cambridge 1912, reprint 1986, p. 270, tells the story of a man born in Bedfordshire in 1842. The author had spoken to him and he related that he could remember a woman who healed his fellow villagers by consulting a copy of Gerard's *Herball* of 1633. Gerard based his book to a great extent on Dioscorides's *De materia medica*, thus bridging a span of 2000 years.

[17] Adam Lonicerus, *Kraeuterbuch und kuenstliche Conterfeyungen der Baeumen, Stauden, Hecken, Kraeutern, Getrayde, Gewuertzen, etc*. Frankfurt 1703 and Ulm 1737. The description of plantain can be found on pp. 319-321: '*Wegerich ist mittelmaessiger kalter und trockener Natur*'. The 1703 edition can be consulted online.

[18] Pliny, *Naturalis historia*. H. Rackham, W.H.S. Jones, D.E.Eichholz, (transls.) (1938–1962). *Pliny – Natural History*. [Loeb Classical Library]. There are two English translations of Pliny online: one complete, by John Bostock and H. T. Riley (1855) at Perseus: http://www.perseus.tufts.edu/hopper/text?doc=Plin.+Nat.+toc; the other is in progress by Bill Thayer (1995 etc): http://penelope.uchicago.edu/Thayer/E/Roman/Texts/Pliny_the_Elder/home.html. See also Aude Doody, *Pliny's Encyclopedia: The Reception of the Natural History*. Cambridge 2010. Part of the text has been translated into Dutch as: *De wereld, Plinius Naturalis historia*. J. van Gelder, M. Nieuwenhuis, T. Peters (transls.), Amsterdam 2018 (first edition 2004).

[19] Pliny, op.cit. (n. 18) Dedication: 13.

[20] Pliny, op.cit. (n. 18) Dedication: 18.

[21] Pliny, Book 23: 9

[22] Pliny, Book 23: 77,7.

[23] Pliny, Book 23: 54,4

[24] Pliny, Book 26: 60,5

[25] Pliny, Book 20: 76,8.

[26] Pliny, Book 25: 94, 110; Book 26: 60, 66, 74, 87, 88, 89.

[27] 'Frequenter mihi in peregrinationibus accidit ut aut propter meam aut propter meorum infirmitatem varias fraudes medicorum experiscerer, quibusdam vilissima remedia ingentibus pretiis vendentibus, aliis ea quae curare nesciebant cupiditatis causa suscipientibus', from Plinii secundi iunioris de medicina, Prologue 1, p. 4 in the edition of Alf Önnerfors (ed.), *Corpus Medicorum Latinorum* 3. Berlin 1964.

[28] K.A. de Meyier, *Codices Vossiani Latini IV: Codices in octavo*. Leiden 1977, pp. 173-175.

[29] For a bibliography of all his works, see http://galen.bbaw.de.

[30] M. Pradel-Baquerre, *Ps.-Apulée, "Herbier", introduction, traduction et commentaire*. [Diss. Montpellier III] 2013, https://tel.archives-ouvertes.fr/tel-00977562v1 or https://theses.fr/177552344. In 2018, Pradel-Baquerre published a modern French translation from the manuscript H277 in Montpellier: *Herbier, précédé du Traité sur la betoine d'Antonius Musa: D'après del Manuscrit H227, Montpellier*. Montpellier (Savoirs Anciens et Médiévaux 5). A German translation was published in 2015: *Apuleius Heilkräuterbuch – Herbarius – Lateinisch und Deutsch*. K. Brodersen (transl.), Wiesbaden 2015.

[31] Extensive information is provided by C. Brewster Randolph, 'The Mandragora of the Ancients in *Folklore* and Medicine', in: *Proceedings of the American Academy of Arts and Sciences* 40:12 (1905), pp. 487-537. A recent overview is by A. van Arsdall, H.W. Klug & P. Blanz, 'The Mandrake Plant and its Legend: A New Perspective', in: P. Bierbaumer and H. W. Klug (eds.), *Old Names New Growth: Proceedings of the 2nd ASPNS Conference, University of Graz, Austria, 6-10 June 2007 and Related Essays*. Frankfurt am Main 2009, pp.

285-346.
[32] Pradel-Baquerre, op. cit. (n. 30), pp. 729-730, n. 1167.
[33] There are many translations of Josephus' works, both in print and available online. See for instance *The Works of Josephus, Complete and Unabridged New Updated Edition*. W. Whiston (ed. & transl.) Peabody 1987; Flavius Josephus, *History of the Jewish War*, ed. & transl. H.St.J. Thackeray, Boson 1928 (Loeb Classical Library, vol III: books 5-7.
[34] Claudius Alianus, *De natura animalium*, Book 14, chap. 26.
[35] 'mandragorae dederunt odorem', etc. *Canticum canticorum* 7:13.
[36] Romeo and Juliet Act IV, scene III v. 48-49; Henry VI, Act III, Scene II, v. 210-211; Antony and Cleopatra Act I, scene V, v 3-5; Othello Act III, scene III, v 331-334.
[37] On localization and dating, see K.-D.Fischer, 'Das Lorscher Arzneibuch im Wiederstreit der Meinungen', in: *Medizinhistorisches Journal* 45:2 (2010), pp. 165-188. He bases his findings partly on the research of the palaeographer Bernhard Bischoff. A facsimile with German translation has been published in two volumes: *Das Lorscher Arzneibuch. Übersetzung der Handschrift Msc. Med.1 der Staatsbibliothek Bamberg*. U. Stoll & G. Keil (eds.), Stuttgart 1989; *Das Lorscher Arzneibuch. Faksimile der Manuscript Msc.Med.1 der Staatsbibliothek Bamberg*. G. Keil (ed.), Stuttgart 1989. The manuscript is also available online: http://bibliotheca-laureshamensis-digital.de/view/sbbam_mscmed1.
[38] Arzneibuch Chap 5: 1,41; f. 63v.
[39] G. Keil, 'Lorscher Arzneibuch', in: W.E. Gebarek et al. (eds.), *Enzyklopädie Medizingeschichte*. Berlin 2005, pp. 865-866. This is countered by K.-D. Fischer, 'Das Lorscher Arzneibuch im Wiederstreit der Meinungen', in: *Medizinhistorisches Journal* 45:2 (2010), pp. 165-188.
[40] M. Collins, *Medieval Herbals. The Illustrative Traditions*, London/Toronto 2000, Chapter 5, pp. 239-298.
[41] Collins, op. cit. (n. 41), p. 243.
[42] London, BL MS Egerton 747 ff. 9v-10r.
[43] The first edition of Adam Lonitzer's *Kraüterbuch* dates from 1557. It was reprinted almost without changes until 1783. See also Cronier (n. 14). For the continuing influence of Dioscorides, see the article by P. De Vos, 'European Materia Medica in Historical Texts: Longevity of a Tradition and Implications for Future Use', in: *Journal of Ethnopharmacology* 132:1 (2010), pp. 28-47.
[44] M. Embach, *Die Schriften Hildegards von Bingen. Studien zu ihrer Überlieferung und Rezeption im Mittelalter und in der Frühen Neuzeit* (Erudiri Sapientia IV), Berlin 2003, pp. 347-353. I used the edition by P, Throop, *Physica. the Complete English Translation of Her Classic Work on Health and Healing*. Rochester 1998. The Latin text is available on the internet via *Patrologia Latina* 197 (1882) (https://patristica.net/latina/); this volume https://books.google.nl/books?id=uPQQAAAAYAAJ&redir_esc=y, cols. 1117-1332.
[45] Throop, op.cit. (n. 45), p. 137
[46] Throop, op.cit. (n. 45), p. 53.
[47] Brussels, KB MS15624-15641. J.J. VandeWiele (ed.), *De 'Liber Magistri Avicenne' en de 'Herbarijs'. Middelnederlandse handschriften uit de XIVe century (MS 15624-15641 Royal Library, Brussels).* Brussels 1965. The 'herbarijs' is on fols. 91r-107r. Online via http://volkoomenoudeherbariaen-medisch.nl/herbarijs.htm.
[48] W.L. Braekman, 'Het Keulse fragment van een Middelnederlandse Herbarijs', in: *Verslagen en mededelingen van de Koninklijke Academie voor Nederlandse taal- en letterkunde*, nieuwe reeks 1 (1973), pp. 38-64, considers the text in detail, online: http://www.dbnl.org/text/_ver016197301_01/colofon.php.
[49] Brussels, KB MS 15624-15641, fol. 91s

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Hec oma non tundumtur. imunum puluere le
nissimū æ tra cū melle atticū teres bene cō

Aeratа generaliter ꝓbſunt neruis · pectori · intеſtinis · et oſſibus
et extinguit colerum ⁊ ſanguinē · et incidunt fleuma · et de-
ferunt humiditatibus complexionis calidae in temporib⁹ ⁊ regionib⁹ calidis
et calidioratem cor aī aero preparatur minuit accidī · ⁊ humidā

7

‘THE COOK IS THE BEST DOCTOR’
PLANTS FOR FOOD AND HEALTH: RECIPES AND PRESCRIPTIONS

Johanna Maria van Winter

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600.*
Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_CH07

Abstract
In his *Tacuinum Sanitatis*, 'Check board of Health', the Christian Arab Ibn Butlan (d. 1066) gives a detailed systematic overview of all kinds of vegan foodstuff according to the theories of the Greek physicians Hippocrates (fifth century BC) and Galen of Pergamon (second century AD), combined with the early Arabic theory of the six *res non naturales*, things that are necessary for health but aren't automatically thought of as such, of which food and drink are the most important. Because a balance of all these elements is the basis of health, the cook who has to care for an appropriate diet is the best physician.

Keywords: Ibn Butlan, Tacuinum Sanitatis, Galen's theory of four temperaments, *six res non naturales*

Hippocrates and Galen: humans as microcosms
In the medieval worldview, food and health were areas that were closely interwoven and, consequently, could not be studied separately. This interconnection is anchored in the classical Greek system of humours and temperaments, known as *Humoral Pathology*. Originally developed by the Greek physician Hippocrates of Kos in the fifth century BCE, the system was refined by Claudius Galenus in the second century CE. According to their conception, humans are microcosms in the centre of the macrocosm, influenced by all of the elements and qualities of the larger cosmos. Everything was organized in groups of four: four fluids or *humores*, four temperaments, four elements (air, earth, fire and water), four seasons and four life phases. Each of these had four qualities: warm, cold, wet and dry.[1]

According to this theory, the human body has four basic fluids: blood (wet and warm), yellow bile (warm and dry), black bile (dry and cold) and phlegm (cold and wet) (ill. 2, p. 145). This leads to the delineation of four human types, each with its specific temperament: sanguine, in which blood is the dominating fluid; choleric, in which yellow bile dominates; melancholic, in which black bile dominates; and phlegmatic, in which phlegm prevails. Each of these types is connected to a given element and a given season. Spring is wet and warm, like air and the sanguine temperament. Summer is warm and dry like fire and the choleric temperament. Autumn is dry and cold like earth and the melancholic type; winter is cold and wet like water and the phlegmatic temperament. In addition, humans pass through four life phases: youth, corresponding to spring and air and blood; early adulthood, like summer and fire and yellow bile; middle age like autumn with earth and black bile; and finally, old age, like winter with water and phlegm.

To remain healthy, it is essential to maintain a balance between all of these factors, that keep changing over the course of the seasons and the years. Even if one is born with a given temperament, he or she undergoes constant influences from other sources. An incorrect diet can disturb the balance, resulting in illness. It is the responsibility of the cook to provide a well-considered selection of food to counterbalance the temperaments and fluids of those at the table and thereby ensure an equilibrium. Illness is a disturbance of that equilibrium and must be countered with a diet that restores the balance of the ailing person. According to this view, the cook is the best doctor.[2]

To be able to achieve dietary balance, each food item had to be classified according to these same qualities of warm and cold, wet and dry. Hippocrates began with such a classification, but it was Galen of Pergamon who became its true master by establishing the qualities of all known plants. He also specified for which part of the body or internal organ they were beneficial or harmful.[3]

Salerno and Toledo: the Arabic legacy
Both Christian and Islamic doctors read the writings of Hippocrates and Galen that were first translated from Greek into Syrian, then into Arabic and finally from Arabic into Latin. The most renowned translator from Arabic to Latin was Constantine the African. He worked in the Benedictine monastery of Monte Cassino in southern Italy, shortly before the year 1100. His work was continued in the twelfth century by scholars at the School of Salerno, not far from there. The monks of Salerno provided commentaries for the texts and made them available to a broader public in verse form.[4] From the thirteenth century onwards, these Latin poems were later translated into many vernacular languages including Middle Dutch.

Sirr al-asrar, Secretum secretorum
Greek medical knowledge also arrived in western Europe via Toledo in Spain, after translation from Arabic into Latin. An anonymous Arabic text from the tenth century, known as *Sirr al-asrar*, in Latin *Secretum secretorum*, the Secret of Secrets, was one of the most important. It was in the form of a 'Mirror for Princes', a genre of writing that offered instructions for rulers on how to govern a country and foster the well-being of its subjects.[5] Encyclopaedic in character, the work covered everything from how to wage war and run a state to such topics as astronomy and alchemy. Moreover, it devoted particu-

1. ◂
Ibn Butlan, *Tacuinum sanitatis*, a page from the Latin translation of his work, thirteenth century. Paris, BNF MS Latin 6977, fol. 17v.

Bottom left, in the margin, we read the words cepe (onion) and allia (garlic).

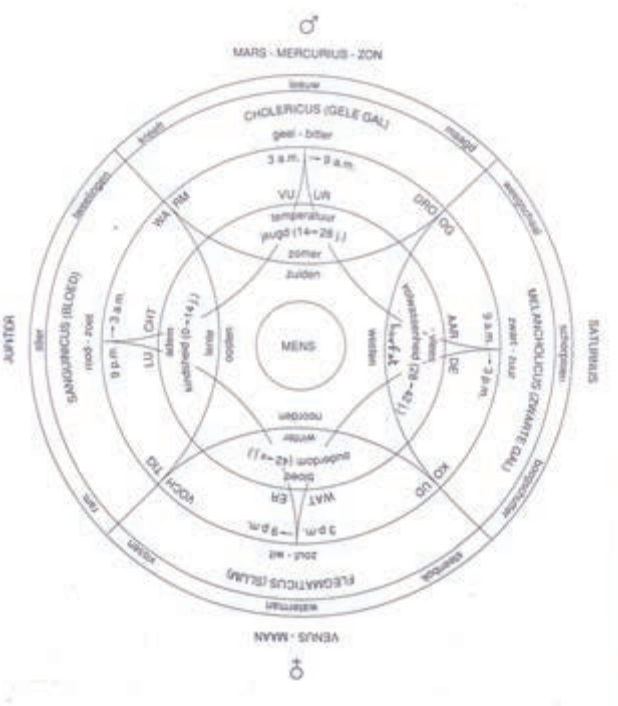
2.
Diagram of the *Humoral Pathology* designed by Ria Jansen-Sieben and Johanna Maria van Winter.

lar attention to the health and food supply of the inhabitants. Needless to say, the ideas of Hippocrates and Galen were incorporated and expanded upon. This code of conduct travelled from the eastern Caliphate of Baghdad to the western Caliphate of Cordoba, where it came into Christian hands when the Christians defeated the Muslims at Toledo in 1085. The Arabic text was then translated into Latin in two versions, a shorter and a longer version, under the title *Secretum secretorum*. As of the thirteenth century it was translated from Latin into many vernacular languages. In the Low Countries around 1270, Jacob van Maerlant wrote a rhymed version with the Dutch title *Heimelijkheid der heimelijkheden* ('Secret of Secrets').[6]

***Tacuinum sanitatis:* Chessboard of health**

Hippocrates and Galen were translated from the Arabic in Salerno and Toledo and many other works as well, such as the commentaries and theories of Arab scholars. A very important contribution by Arab thinkers was the theory of the *sex res non naturales*, the six non-natural things, or the six things that do not occur as a matter of course but are essential to stay alive. This theory was formulated by the philosophers *Hunayn ibn Ishaq al-Ibadi*, known in Latin as Johannitius (ninth century), and '*Ali Ibn 'Abbas al-Majusi*, latinized as Haly Abbas (tenth century). Their theory was not completely new, but was conceived as an overarching system linking older systems together.[7] In their writings they make a distinction between the six non-natural things and the natural things or *res naturales* such as gender, physical build and the colour of one's skin, hair and eyes. They also have a category of counter-natural things, the *res contra naturam*, namely illness, the origin of illness and its accompanying characteristics.[8] The most relevant for us here are the six non-natural things. These have to do with how one deals with the air (or climate), food and drink, exercise and rest. This also comprises bathing, sleeping and wakefulness, consumption and excretion, sexual activity and various psychological states. Of these six categories, the one that receives the most attention in the medieval treatises is that of food and drink. In the eleventh century, the physician Abu Hasan al-MukhtAr ibn al-Hasan ibn 'Abd ibn Sa'd ibn Butlan – abbreviated in the western world as Ibn Butlan (d. 1066) – simplified this philosophical system and made it easier to apply by presenting it in the form of a tabulated chessboard. Called *Taqwim as-sihha* in Arabic, it was translated into Latin in Palermo in the thirteenth century as *Tacuinum sanitatis*, 'Chessboard of Health'. The six categories are not treated in the same order, and not all of them are discussed equally extensively. Interestingly, food and drink form the subject matter of approximately 75 percent of the whole work.[9]

The Latin version of the tables of Ibn Butlan drawn up in the thirteenth century were composed as follows: each table was divided in the broad middle section into slanting zigzag strips with text consisting of one or more lines. There are headings in red ink above each zigzag. The headings indicate (a) the best of its type; (b) beneficial effects; (c) harmful effects and (d) what can be done to counteract these (ill. 1, p. 142). On each side, left and right, of the middle section we see vertical columns with nine types of clarifications corresponding to each of the seven zigzag texts. On the left side, from left to right (and always from top to bottom), we see numbers in the first vertical column indicated by relatively large letters in red ink from B through H. Also, vertically in red rubrics we find the name, in black, its inherent nature and its degree of heat and cold. Then there are the zigzag rubrics, a, b, c, d. On the right side in vertical columns the chessboard indicates: the effects of the product, the temperament of the intended



De Aceto, & Acetatis, & quibuldam fructibus. Iuuamenta rationabilia.

Numeri.	Nomina.	Gradus.	Quod fit ex uino.	Cholerae, & ingingiuis, & appetitui.	Neruis.	Cum aqua, & zuccharo.	Semper calidis, Septentriona. Frigidis. Frigidis. Frigidis. Septentriona. Montanis. Regiones.
							Tempora.
							Aetates.
							Complexiones.
							Qualitates.
							Actan. Iuuenibus. Cholericis. Nutrim. modicū.
							Hyem. Senio. Frigidis. Humor melic.
							Aestan. Iuuenibus. Calidis. Sang. illauda.
							Autumno. Senectuti. Frigidis. Melancholia.
							Hyemi. Senio. Frigidis. Nutri. malum.
							Hyemi. Senio. Frigidis. Sperma, & lac.
							Hyemi. Decrepito. Frigidis. Hinc grol. et ac.
							Quid generat.
1	Sergaria, radix afae, uel ferulae.	Fri. in 1. fic. in 1.	Cal. & fic. in 1.	Recens & alba, et non perforata.	Abstergit stomachū, & prouocat uomitū, & q̄rtanā ex adusto flegmate pellit.	Cerebro, & neruis.	Cum aceto.
2	Cucumeres, & Citrulli.	Fri. in 2. fic. in 2.	Cal. & hu. in 2.	Nisaburus completi.	Febribus ardentibus, & urinam prouocant.	Faciunt Illiorum dolorē, & stomachi.	Cum melle, & oleo.
3	Melongiana.	Fri. in 3. fic. in 3.	Cal. & hu. in 3.	Recēs, cuius dulce interius.	Hemorrhoisagiae, stōacho, sanguini, uomitui, & unicuilibet accidēti ex debilitate stōachi.	Vaporib. melancho. capiti, et efficit Bochor in ore.	Cum uentosis, et multitudine aceti.
4	Kaleo, id est, Enula.	Fri. in 4. fic. in 4.	Cal. in 1. fic. in 1.	Tenera, recens.	Minuit urinam.	Minuit sanguinem, & sperma multum.	Cum aceto.
5	Cepae.	Fri. in 4. fic. in 2.	Cal. in 2. & hu. in 2.	Albū, aquaticum, succosum.	Addūt in coitu: eo q̄d auferāt nocumentū q̄d fieri posset ex p̄mutatione aquae.	Facit sodā in capite.	Cum aceto, & lacte.
6	Alia.	Fri. in 4. fic. in 3.	Cal. in 2. & hu. in 2.	Nodosa bulbis.	Toxicis.	Expulsiuae, cerebro, & uisui.	Cum aceto sis, & oleis.
Numeri.	Nomina.	Gradus.	MELIVS EX REipsa quam quęris.	IVVAMENTVM eius.	NOCVMENTVM eius.	REMOtio Nocumenti eius.	Quid generat.

1 2 3 4 5 6 7 8 9 10 11 12

3.
Ibn Butlan, *Tacuinum sanitatis*, early printed version of the Latin translation of his work. Strassburg 1531, p. 56. Leiden, UB 633 A 1. Compare the page design with the manuscript in ill. 1 that has identical ingredients. Details on among others vinegar, cucumber, eggplant, onion and garlic.

user, his or her age, the seasons and the regions where the product is effective. Next to the left-hand pages are the right-hand pages, presenting us with the names and opinions of the philosophers per product.

In 1531, this Latin text was printed in Strasbourg in a comprehensible table, without the slanting zigzag lines of the original eleventh-century Arabic and thirteenth- century Latin versions (ill. 3, p. 146). The left-hand pages of this post-incunable are divided into rectangular boxes summarizing the characteristics of the different foods and products. In contrast to the handwritten thirteenth-century manuscript, the headings for the various rubrics are not at the top of the left-hand pages, but at the bottom. That leaves room at the bottom of the right-hand pages for woodblock decorations, with which this printed work is richly decorated. In the copy in the University Library of Leiden, moreover, they were coloured by hand.

Reprints of this new Latin publication were made in Strasbourg in 1532 and 1533 and a translation into German was published in 1533. In the German edition, the headings are back at the top, but the decorative woodblock prints remain. A facsimile edition of the German post-incunable from 1533 has been published by the University Library of Graz, Austria, to which we will make frequent reference below (ill. 4, p. 149).[10]

As early as the fourteenth century a few exquisite copies of the *Tacuinum sanitatis* were produced on parchment with large miniatures and very brief texts. These were made at the behest of wealthy patrons with little interest in scientific information or attention to the careful distinctions set out in the longer version of Ibn Butlan (ill. 5, p. 146, ill. 3, p. 100). Nowadays, it is these large miniatures that are known in their beautiful reproductions unlike the long versions in Latin and in German that are more obscure.[11]

The long version reveals how far Galen's classification from the second century had been implemented. Galen distinguished not just the characteristics of foodstuffs, such as cold or hot, wet or dry, but also listed to what degree, on a scale from one to four, that characteristic was present in each type of food. In the very first table, that deals in this version with fresh fruit, the first entry describes figs. According to Galen, figs are hot and dry yet according to his predecessor, Aristotle (fourth century BCE) they are hot, dry and wet. They are hot and wet in the first degree. White, peeled figs are the best. They cleanse the kidneys of sand and protect against poisons. They have a bloating effect that can be counteracted by a mixture of salt water and sour syrup. Figs provide for good bodily humours and are especially good for people with a cold temperament and for older people, in particular in the autumn in moderate climates.[12] A few more examples about the gradations of characteristics: according to the third table, sweet melon is cold in the second and wet in the third degree.[13] According to the ninth table, mustard is hot in the third degree and dry in the second degree.[14] Garlic is even hotter and drier. According to the tenth table, garlic is hot in the fourth degree and dry in the third degree.[15]

As we stated above, not only are the degrees indicated in this version, but also the positive effects of a given food. The negative effects are provided as well, together with instructions on how to counteract them. Garlic is effective against poison and intestinal worms, but bad for the eyes, the brain, the kidneys and the lungs; moreover, it causes thirst. These ill effects can be counterbalanced by combining it with vinegar and oil. Sweet melon dislodges kidney stones and has a laxative effect, but not if one drinks a sour syrup alongside. It is especially good for older people with a phlegmatic temperament in the autumn, and in moderate climates. Mustard is beneficial for gout but dangerous for the brain, unless it is prepared with almonds and vinegar. It causes sour humours and is particularly good for people with a cold and wet temperament, such as the elderly, in winter in the mountains. Not only are plants described in this way, but also meat, fish, poultry and all sorts of dishes composed of several ingredients.

Food and belief: fasting rules as established by the church

What one ate was not regulated solely by theory, but also by religious stipulations. Western Europeans were governed by the rules of the church under the authority of the pope in Rome. An important part of the rules had to do with fasting and abstinence. What was understood by fasting was the omitting of meat from cows, pigs and sheep, as well as poultry such as chickens and ducks, along with their eggs.[16] Fish, on the other hand, was always allowed, which means that we cannot consider medieval people to have been vegetarians or vegans.

The periods during which one was required to fast were determined by the church in the early Christian period. They were not prescribed in the bible and were intended by the early church to call believers to concentrate on the life and suffering of Jesus. Woven into this however was the unexpressed classical Greek, that is to say heathen, emphasis on the importance of the change of the seasons. According to the Greeks, the body and its temperament had to prepare for the different qualities of a new season and this required rest and recalibration. It is noteworthy that the fasting periods are scheduled to fit in more or less with the change of seasons. The longest period of fasting, the forty days from Ash Wednesday until Easter, comes at the beginning of spring. A short fast of a week after Pentecost is at the start of summer. The next short fast comes in the middle of September at the beginning of autumn, and finally there is a longer fasting

period from advent until Christmas at the onset of winter. In the first period, believers are called to concentrate on the suffering of Jesus and in the last period, on his birth. The short fasts during the week after Pentecost and the one in the middle of September were not established by church doctrine. They can only be explained as legacies from the Greek theory of the humours and temperaments.

In addition to the requirements regarding fasts, there was also abstention. Depending upon the bishopric, those occurred two days a week, either on Wednesday and Friday or on Friday and Saturday. On those days no meat was allowed, although dairy products and eggs were permitted. In any case, the days of abstinence were easier to adhere to in a normal household than the weeks of fasting. In areas where butter was used for cooking, as in the Netherlands, the prohibition of dairy products in particular posed a problem, as cooks had to switch to vegetable oil instead of butter. Domestic oils such as rapeseed oil were not appealing in taste and olive oil was an expensive import item from Mediterranean countries. Fasting could be more expensive than non-fasting, in other words, a fact which we see time and time again in the records of housekeeping budgets of institutions.

Spices and Sugar from the Orient

Plants and their fruits were not included in the Christian prohibitions for fasting and, consequently, are found on medieval menus in all countries during every season. But what plants were available? And how did they fit into Ibn Butlan's health system? One thinks first of leafy vegetables and legumes, and then of herbs. Herbs such as parsley, celery, thyme, marjoram, sage and savoury were all known, but they were used more as medicine than as food. In contrast, spices that came from the Orient such as ginger and cinnamon, pepper, nutmeg and mace are all mentioned for use in the kitchen in cookbooks from the thirteenth to sixteenth centuries.

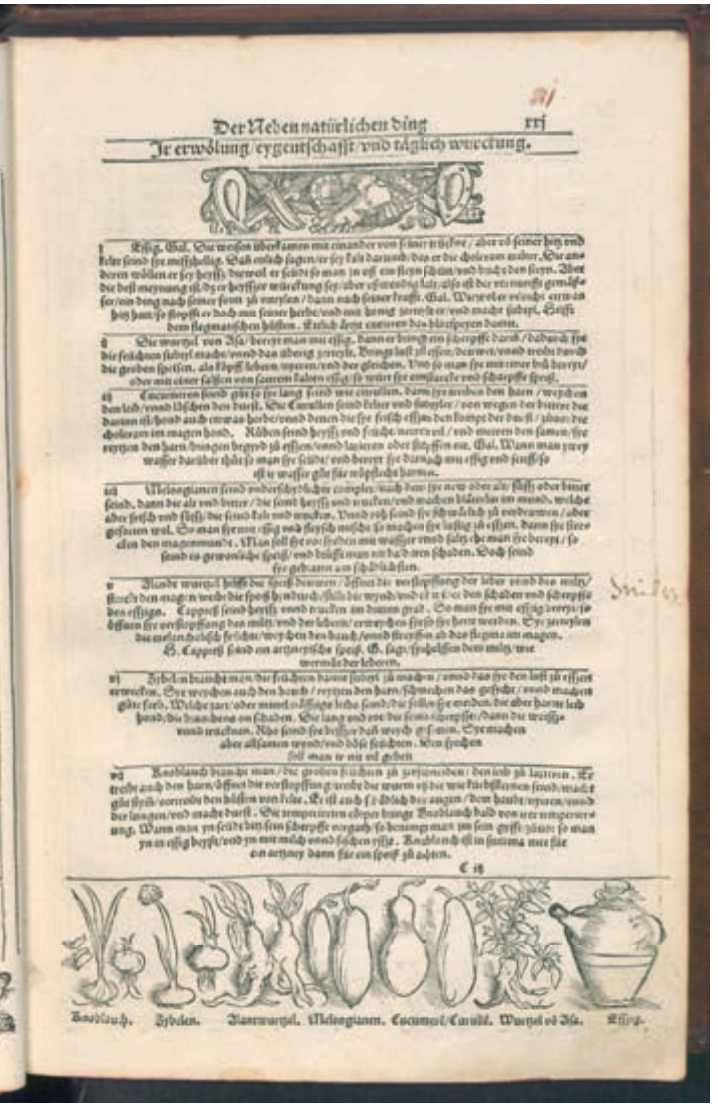
We should note that cookbooks were only written and read by people who were literate, in other words, those in the higher social circles, at the courts of princes and bishops, in monasteries and the houses of the wealthy. They had personnel for the house, garden and kitchen. Often it was the master who dictated the recipes for the cook to record. Until the sixteenth century that was almost always a man; it was not until the second half of the sixteenth century that women moved into the kitchen and took over the responsibility of cooking.[17]

Cookbooks were a product of the elite and, as a result, included elegant recipes with expensive ingredients. Spices from the Orient were an example of this, certainly before the Dutch East India Company started importing them into the Netherlands in large quantities in the seventeenth and eighteenth centuries. When that happened, they lost their attraction as a status symbol and largely disappeared from refined tables. During the Roman period and in the Middle Ages, these spices had to be transported by camel across difficult caravan routes through Asia to the coasts of the Levant and from there via Byzantium (Constantinople) to Venice and other Italian cities. There they were purchased by traders from the North who transported them, primarily by river boats, to the markets in northern countries. Needless to say, the spices would have lost a great deal of their freshness and taste and had to be used in considerable quantities. They were expensive, of course, but that was part of their attraction as they attested to the wealth and status of the host.

Among the eastern spices was cane sugar, a substance unknown to the Romans, but introduced to the west at the time of the crusades. Initially imported in small quantities, the supply increased with time. As a consequence of their conquests and trade expeditions, Arabs in the Near East introduced sugar cane and the method to process it to the Levant from India. They, in turn, introduced it to the crusaders as of the twelfth century. The religious Order of Knights of the Hospital of Saint John of Jerusalem, with its headquarters in Jerusalem, had sugar plantations in the area surrounding Akko, that were worked by Muslims who had been taken as prisoners of war. When the Christians were forced out of the Holy Land after the fall of Akko to the Mamluks in 1291, they moved their headquarters first to Cyprus, and in 1309 to Rhodes. The Muslims had planted sugar cane on Cyprus quite early, and after the conquest of Cyprus, the Christians took over its production. The Knights of the Hospital of Saint John of Jerusalem had a large plantation at their command post of Kolossi, not far from Limassol, where the ruins of a sugar mill may still be seen at Kolossi castle. In the fourteenth century, the best quality sugar came from Cyprus. But in the fifteenth and sixteenth centuries there was increased competition, first from sugar from the Canary Islands where it was produced by the Spanish and Portuguese, and then from sugar from the West Indies, finally forcing the end to sugar production on Cyprus in 1610.[18]

According to Ibn Butlan's Chessboard of Health (*Tacuinum sanitatis*, 30th table),[19] sugar cane was hot and wet in the first degree. It was useful for chest pain and coughing and was a diuretic. It caused swellings, but these could be cured by washing in warm water. It was recommended in particular for people with a cold temperament and for older people, especially during harvest season in the areas in which it grew. The sugar itself, in particular white sugar (25th table),[20] was hot in the first and wet in the second degree. It was good for the kidneys, but caused bile to flow, for which one could take sour pomegranate. It did not cause bad blood and was good for all temperaments, all ages, all seasons and in all regions. Perhaps this recommendation was one of the reasons for the increasing consumption of sugar in the Middle Ages from the fourteenth century onwards. As new trade routes began to be used to transport sugar, it became less and less expensive, and this was probably another reason for its growing popularity. A Dutch cookbook written in the area of Antwerp around 1460-1480 includes sugar in more than half of its recipes, in sweet dishes but also in savoury dishes with meat, fish and poultry.[21]

4.
Ibn Butlan, *Schachtafeln der Gesundheit*, early printed version of the German translation of his work, Strassburg 1533, p. XXI. Details on among others vinegar, cucumber, eggplant, onion and garlic.



Dried fruit from southern Europe, almond milk and comfits as alternative

Before sugar became known in Europe, there were other sweeteners that could be used in cooking. Honey was an option of course, but also reduced wine and all sorts of preserved fruit and nuts from southern Europe, such as almonds, figs, dates, currants and raisins. The Romans were very partial to reduced wine; people in the Middle Ages less so, but Mediterranean fruit remained popular. As they were dried before transport, these fruit products kept well. The fresh white figs recommended by Ibn Butlan (first table)[22] were only available in southern Europe where they grew, but northern Europeans enjoyed their dried variants. The fig was hot in the first degree (fourth table),[23] caused constipation and was very nutritious, especially for old people in the spring and in mild climates. The same was the case more or less for dates, which according to Ibn Butlan (third table)[24] were hot and dry in the second degree; they did block the bowels, but drinking sour syrup provided an antidote for that problem. They were bad for the teeth but had great positive influence and were good for the blood, in particular for people with a mild temperament in all age categories and especially in mild climates in autumn and winter. According to his fourth table, on the other hand, ripe dates were hot and wet in the second degree and caused bile-like blood, but were especially good for people with a cold and wet temperament such as old people, in particular in the winter in northern areas.[25] His theories were not consistent in other words, and it would be wise not to follow them blindly as a bit of common sense was called for. In actual practice, this happened through a combination of ingredients in recipes, that perhaps seem strange to us today, but often produce a surprisingly appetizing result.

A recipe using dried fruit is found in a Dutch cookbook from the Brabant area dating from 1460-1480. It is for a meat pie that calls for two rabbits and a chicken stuffed with the following: two measures of ginger, one measure of nutmeg, one-half measure of mace, one-half measure of cinnamon, a good eighth of a measure of saffron, two pounds of plums, one half-pound of dates, one half-pound of currants, ten cooking pears, a bit of sugar and a whole pound of butter.[26] They had a heavy hand with spices, it is clear, but we have to admit that chicken and rabbit combine well with sweet fruit.

We find two recipes in an English cookbook from around 1430 for 'rapeye', a thick pudding or cake of fruit and spices, often with meat or fish. The first recipe gives these instructions: take equal parts of figs and raisins and cook them in wine; chop them finely, put them through a sieve and allow the mixture to become firm. Take currants, pine nuts, mace and sugar and add them to the mixture. Place this in a pan and add red sandalwood powder, pepper and a bit of saffron, and if the mixture is not thick enough, a little flour. Sprinkle with salt. In the second recipe, you make a thick almond milk and add finely chopped dates and raw apples, peeled, and strained with wine or filtered almond water. Add ground gin-

Allea
Knoblauch.



Allea Complexionem ē. ſ. ſicci 2° Et̄ meliora ex eo eſt qui modice tenuitatis ē. huius
tūt venēū frigidi & maſtis ſcorpionū & tinnū & tīſiar ūmicē Vocat̄ nocet oculis
& cerebro Venis nocē cū aceto et oleo Crudus nocet humorē groſſū et adustū Coctus ſiru
Decrepitus ſenibus hyeme & mōtuis & ſeptentrionalibus.

Knoblōch ſeindt warm in vierdten vnnd trieken im anndern grad die am wenigſten ſchaden
ſeind am beſten dein güet für kaltte Gifft Scorpion vnnd Natern biß vnnd tödten die Würm
Schaden den äugen vnnd dem hirn corrigiert mit Eſſig vnnd öl Sie machen ain gros durſtigs ge
blüet. ſüegen den alten im Winter in Fürgiam vnnd kalten lannden.

5. ◁
Ibn Butlan, *Tacuinum sanitatis*, illustrated copy of his work with little text, Rhineland, mid- fifteenth century. Paris, BNF MS Latin 9333, fol. 23r. Details on garlic (Allea, Knoblauch).

6.
Boec van medicinen in Dietsche, Bishopric Utrecht (city of Utrecht?), late fourteenth century.
Utrecht, UB MS 1328, fol. 126v, detail.
Elaboration on chard ('warmoes', vegetable).

7. ▶
Breviary, Flanders, beginning fourteenth century.
The Hague, KB MS 76 J 18, fols. 214v-215r.
Two consecutive calendar pages for the months of October, November and December; lower margins: grapes are crushed in a vat; the juice is poured into a wine barrel.

ger, cinnamon, mace and cloves and enough sugar. Thicken the mixture with rice flour, colour it with saffron and red sandalwood and sprinkle cinnamon on top.[27]

Almonds were almost always used in the form of almond milk in the Middle Ages. To make almond milk you must take peeled almonds and crush them to a paste. Then you add a liquid very carefully, drop by drop, and mix until you have a homogenous milk. The more liquid you add, the thinner the milk becomes. A variety of liquids could be used to make almond milk: water or wine or fish bouillon or the cooking liquid from whatever you fancy. When cooking with almond milk, you must keep stirring, because it thickens naturally and scorches easily. Before you know it, it is as thick as a pudding whereas what you really want is the thickness of a sauce. The Romans used flaked almonds, but these hardly ever appear in medieval recipes. Almond milk must have been borrowed from Arabic cuisine, where recipes frequently call for almonds in cooking liquid.[28]

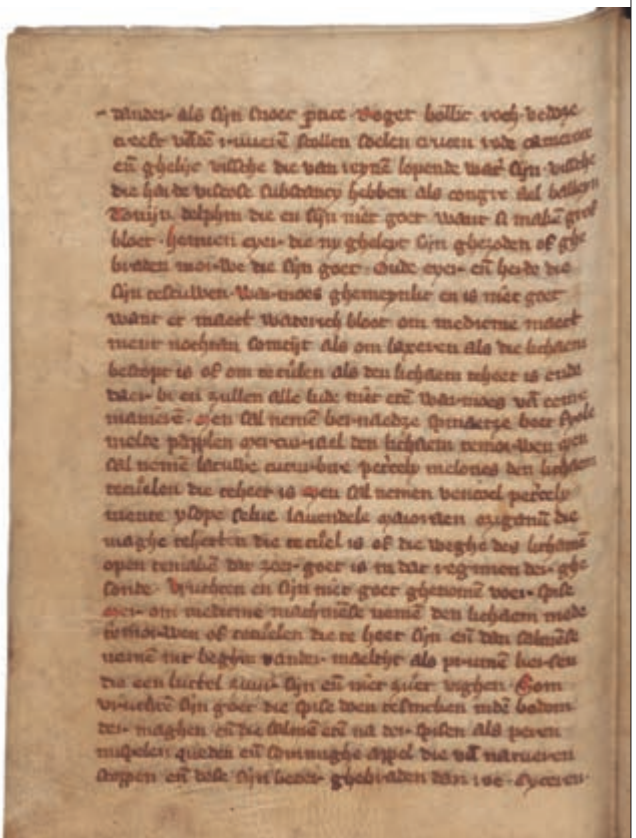
The advantage of almond milk was that it could also be used during periods of fasting as a replacement for animal milk as not only meat from animals was forbidden but also their milk. But outside fasting periods, its thickening properties made it a wonderful ingredient for ragouts of meat, fish or chicken. As for the temperament theory, Ibn Butlan only relates that sweet almonds counteract the negative effects of other fruits such as the constipating effect of dried figs (fourth table)[29] and bitter almonds (28th table).[30] Bitter almonds are hot and dry in the second degree, and if eaten before drinking wine, they prevent drunkenness. They cause undigested juices and are to be recommended especially for old people, particularly in the winter in northern countries.

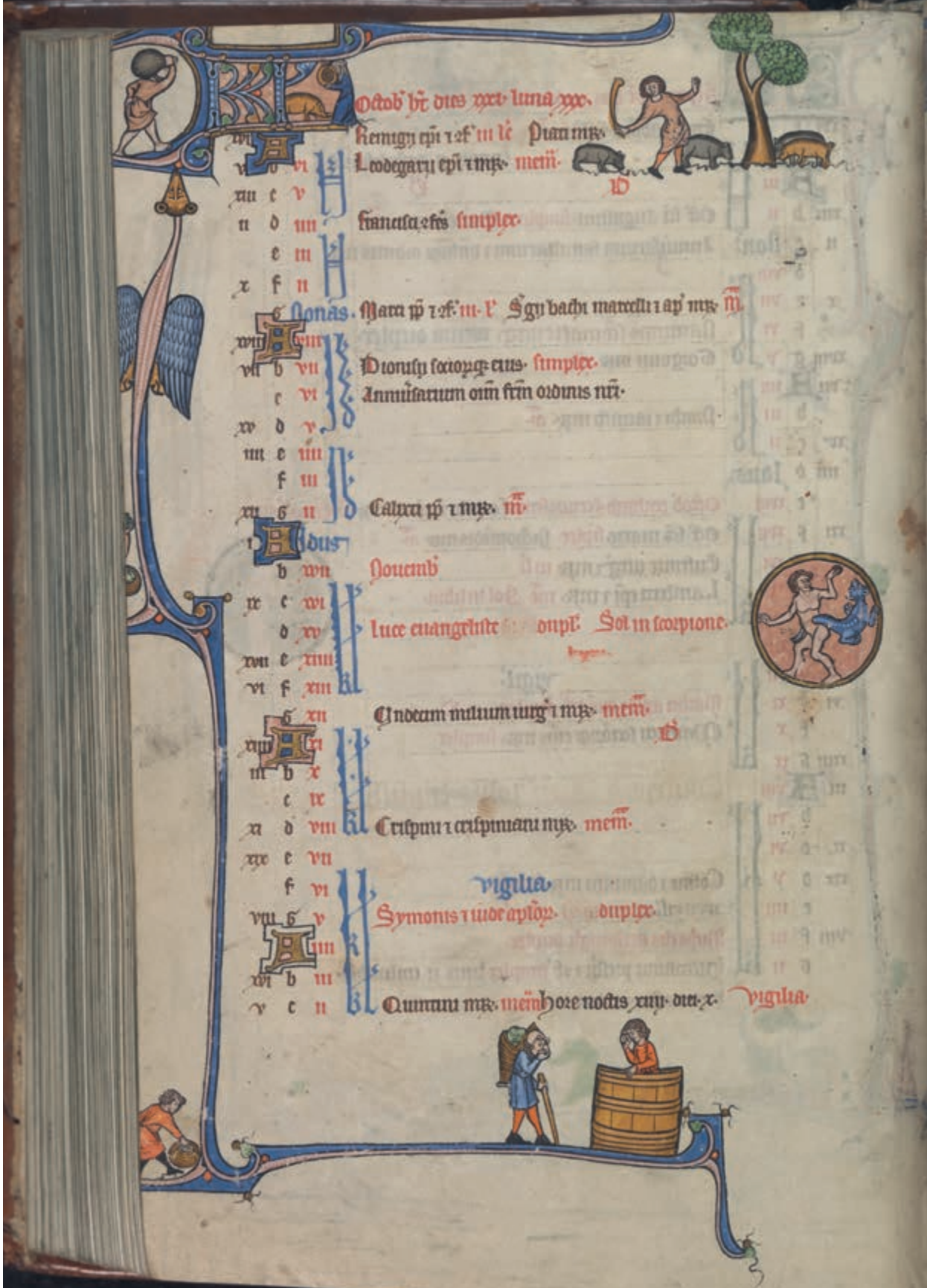
Now and again, Ibn Butlan refers to a sour syrup to counteract, for example, constipation caused by dates (third table).[31] Unfortunately, I have not come across any recipe for sour syrup. In the 37th table he relates that sour syrup is moderately hot and cold, has a cleansing effect and is appropriate for all temperaments, all ages, seasons and regions. It can be made from quinces and strengthens the stomach and liver, stimulates the appetite and is good for convalescing patients.[32]

Since Greek Antiquity, quinces have been used to make a jelly that was recommended for stomach aches. We also find recipes for this jelly in the Middle Ages, called 'condoignac' in French and 'queekruijt' in the Low Countries. The renowned French cookbook *Le ménagier de Paris*[33] from 1393 contains a recipe for quince jelly and a Dutch cookbook from Brabant dating from 1460-1480 has two such recipes.[34] It is specified in all of these recipes that the fruit must be peeled, cored and quartered. It is then cooked in red wine and mashed. Honey should be boiled for a long period, skimmed and then added to the cooked quinces and stirred thoroughly. It must be of a thick consistency and, when still warm, should then be transferred into split wood boxes. Sugar can also be used, in a 2:1 proportion of quinces to sugar. In the first of the Dutch recipes, honeycomb is used, or alternatively 'sucre de mel', the liquid from sugar cane that has been brought to a boil once and has not yet crystallized into sugar. It was then transported in pots, which is why it was called pot sugar in Dutch. This is a Spanish process, introduced from Granada.[35] Comfits were also made from other fruits such as mulberries (diamoron), nuts, the peel of bitter oranges, red currants, cherries, ginger root or calamus root (sweet flag).[36]

Fruit and vegetables known in the Low Countries

The theory of the six non-natural things was also known in the Low Countries and was recorded in an anonymous document that was probably copied shortly before 1400 in the Friars Minor monastery in Utrecht. It has been given the name




Octob' br dies xxx luna xxv.
Remigy epi 7 cf' m lc Pian mr.
Leodegary epi 7 mr. mem.
Francisci cfes simplex.
Nonas. Marci pp 7 cf' m. l' Sci bachi marcelli 7 ap' mr. m.
Dionysij sociorq; eius simplex.
Annuntiatum om fm ordinis nr.
Calixti pp 7 mr. m.
Idus
Nouemb
luce euangliste dupl. Sol in scorpione.
Undecim milium virg' 7 mr. mem.
Crispini 7 crispiniani mr. mem.
vigilia
Symonis 7 iude apl'or. duplex.
Omnium mr. mem hore noctis xiij. diei. x. vigilia

Nouemb hr dies xxx luna xxv.
Kalendas eius sonum totum duplex
Cōmemoratio oīm fidelium defunctor. Incipit vij embolismus.

Ionas

Quatuor coronator. m f.
Theodori mr. m f.

Martini epi r cf semid. Menne mr. mem.

Brictij epi r cf mem.

Decembr.

Sol in sagittario.

Oct sc̄i martini. simplex.
Sc̄e elizabeth. simplex.

Cedde ung r mr. simplex.
Clementis p̄ r mr. simplex.
Grisogoni mr. mem.
Katherine ung r mr semiduplex.

Crisis r agricole mr. mem.

Saturnini mr mem. vigilia.
Andree ap̄li dup.
Hore noctis xv. dies viij.

p. 179 ▶
Ibn Butlan, Schachtafel 1533, p XXI, see ill. 4.

'Book of Medicines in Dutch' (*Boec van medicinen in Dietsche*) by its modern editor, the scholar W.F. Daems. The section on food and drink is treated as the fourth category and starts with bread. It then considers the meat of birds and young animals followed by older animals, fish and eggs. Next, it discusses vegetables, green herbs, fruit, legumes, and dairy products. The last considerations are the time meals should be served, the order of the dishes and, finally, wine. We shall examine his remarks on vegetables and related food products.[37]

The anonymous author is not very positive about vegetables: 'Generally speaking, vegetables are not good as they cause watery blood. They can sometimes be used as medicine, as a laxative in cases of constipation or to cool off the body if it is too hot' (ill. 6, p. 151).[38] One should not eat just one type of vegetable but vary them. To make the body soft, one should eat borage, spinach, beets, violets, orache, mallow (*malva*) and *mercurialis*. To cool a hot body, one should eat lettuce, cucumber, parsley and melon. To counteract a cold stomach and to open up the body, and in general as part of a good diet for healthy people, one should use fennel, parsley, mint, hyssop, sage, lavender, marjoram and oregano. Apparently, parsley is good for both cooling and warming.

Fruit is not healthy as food, but it can be used as medicine to soften the body or to cool it. In that case, it must be taken at the beginning of a meal, particularly plums, sour cherries and figs. On the other hand, certain fruits are naturally constipating: pears, medlars, quinces and some types of apples. They must be taken at the end of a meal because they make what has been eaten sink to the bottom of the stomach. They are better cooked than raw.[39]

Chickpeas, green peas and pumpkins are not healthy but their cooking liquid is, because it opens the pores, cleanses the kidneys and bladder of sand, and purifies the entire body of its solidified humours.[40]

The anonymous author says almost nothing about onions and garlic,[41] although they were eaten in the Netherlands during that time and are listed in cookbooks. Turnips, leeks and cabbages also receive little attention and we do not find them in cookbooks or even in the cesspits that have been studied in archeo-botanical research, even though they must have been consumed, in 's-Hertogenbosch for example.[42]

The cookbooks from this period mention only cooked fruit and legumes, and that the residual cooking liquid from boiled peas was used for mixing with other cooking liquids or for making almond paste.[43] For me, the question remains whether or not fruit was also eaten raw. I have found little evidence of this in housekeeping accounts or menus and I am afraid that the disapproval by the medical community corresponded with the instinctive fear on the part of the consumer. Fruit was welcome in comfits and pies, but not raw. Remarkably, we never find mention of scurvy resulting from a vitamin C deficiency. That is only reported on sea voyages of longer than six weeks. Apparently, human beings, unlike most mammals who can produce vitamin C themselves, need less vitamin C than we think. Furthermore, I think it possible that medieval eating patterns included compensation for the lack of raw fruit in the form of '*verjus*' as it is called in French, literally 'green juice', a form of vinegar. It consisted of juice from unripe grapes or apples and was used in almost every dish to compensate for an excess of fat.[44] 'Green juice' was lacking on sea voyages; on board sailors had to make do with a fare of ship's biscuits, salted herring, pickled meat and beer. Although 'green juice' does not contain vitamin C, it is conceivable that it played the same role as sour citrus fruits. The importance of citrus in the prevention of scurvy was only discovered after the Middle Ages, and resulted from the experience of sailors during the expeditions to discover new lands.

Bread, porridge and wine from good ingredients

Both Ibn Butlan and our anonymous Dutch writer paid attention to the importance of grains and bread. The Dutch 'Book of Medicines' is brief on this subject: bread must be made from good wheat without bran and with not too much salt. It must be well-proofed and light. It must not be eaten fresh but, rather, only after a day or two. Bread that does not meet these criteria should be avoided, just like the crusts of pastries and cakes, bread that was fried in oil, pancakes and unleavened bread that is sweet and not light.[45] The author has nothing to say at all about porridge made from grain, although it can be assumed that working farmers often preferred porridge to bread. To make bread you needed milled flour that had to be delivered by a miller, who might cheat you. In addition, you needed an oven for baking, that did not exist in wooden houses. There was bread to be purchased from the baker, but that was much more expensive than the porridge you could make yourself by crushing the grain kernels and boiling them in water.

In contrast, the tables of Ibn Butlan pay attention to porridge made from a variety of grains (fifth table)[46] and after that to types of bread (seventh table)[47]. Rye is considered to be the most nutritious of the grains and is hot and wet in the second degree. It causes constipation, but this can be balanced through proper preparation. It provides good blood for all temperaments, all ages, all seasons and, especially, in

8.
Psalter (*Fécamp psalter*), Made in Paris for Aliénor d'Aquitaine, c. 1180. The Hague, KB MS 76 F 13, fol. 9v. Calendar page with a depiction of the grape harvest in the month of September.

p. 180 ▶▶
Manuscript for fasting seasons, Jutphaas or Jutphaas region, mid-sixteenth century. The Hague, MMW MS 10 C 26 (fragment), fol. 11r. Note bars for two songs: above, a festive song for the occasion, in which the notes consist of meats allowed again at the end of the fasting period; below, a partial song with musical notes in the forms of loaves of bread, salty pretzels, fishes, mussels, turnips and onions: all the foods that are allowed during fasting seasons.

moderate climates.[48] Porridge made from rye and barley is cold and dry in the second degree and creates good humours. It is especially good for people with hot temperaments such as young people, in the summer in hot climates.[49] Here, the characteristics attributed to the grain are different from those for the porridge made from the same grain. Is the first reference to rye bread? Grain cannot be eaten raw in any case. However, the discussion of bread types is devoted to white breads,[50] presumably made with wheat.

The difference between the gradations for grain and those of the porridge made from that grain is also seen in the case of wheat, which is hot and wet in the second degree as grain, but hot and dry in the second degree as porridge. Wheat itself is good for the humours, in particular for people with a hot stomach, and young people in the winter and in southern countries. As porridge, it is good for people with a moderate temperament, in the spring and in warm countries.[51] The use of wheat for white bread is not mentioned. Was this assumed to be self-evident? Barley is mentioned as grain, for porridge and for barley water. It is cold and dry in the second degree in all cases, and is good for young people in the summer and in warm climates.[52]

The following distinctions are made between types of bread: white bread, whole-wheat bread, unleavened bread and bread made from rice flour. We have bread that is baked in an oven or that is baked over an open fire or on pebbles.[53] Except for rice bread, the type of grain is not specified. Ibn Butlan does not mention bread proofed with yeast, only unleavened bread.[54] Must we conclude that all other breads were made with sourdough? White bread with enough sourdough provides for good humours and is good for people with a moderate temperament of all ages, in all countries and all seasons.[55] The bloated feeling as a result of eating unleavened bread, Ibn Butlan relates, can be offset by drinking old wine.

Wine is the topic of the 28th table, both wine made from grapes and date wine. This includes fragrant wine, thick red wine, sour white wine and wine that turns into vinegar.[56] All wine made from grapes is hot and dry in the second degree, but date wine is hot and wet in the second degree. Wine is recommended for people with a cold temperament and for old people, in all seasons of the year and in cold countries. Date wine is especially good in the autumn and in coastal countries. The negative effects of wine can be neutralized by diluting it with water or by eating sour pomegranates or sour quinces. (ills. 7, pp. 152-153 and 8, p. 155).

Ibn Butlan was a Christian Arab who, consequently, did not object to alcoholic drinks as Muslims would. One had to be wary of drunkenness, but alcohol was not forbidden. The Dutch 'Book of Medicines' also recommends diluting wine with water, in particular running water from a spring.[57] The amount of water to be added depended on the season and a person's temperament. Clear white or red wine may be drunk, but not young wine, rough wine or cloudy wine. A sour drink should not be taken on an empty stomach as that causes gout and tremors of arms and legs. One should not drink all sorts of different beverages during a meal, nor drink between meals or before going to bed.

Conclusion

Many different types of plants were consumed as food in the Middle Ages, among them spices from the Orient including sugar, fruits from Mediterranean countries, comfits made from quinces, mulberries and other fruits, vegetables, fruit and green herbs, grains and grapes. Based on the various beneficial medicinal effects attributed to them, medieval women and men had a more or less positive opinion about them. The goal was always to achieve or maintain a balance between the opposing influences of temperament, life phase, season and climate. A balanced diet was the best guarantee for good health and it was clear that the cook was the best doctor.



NOTES

[1] Found in every manual on medical history and also in: M. Weiss Adamson, *Medieval Dietetics: Food and Drink in Regimen Sanitatis Literature from 800 to 1400*. Frankfurt am Main etc. 1995. German Studies in Canada, Band 5, pp. 10-13.
[2] See for example the symposium collection Graz 2013: A. Hofmeister-Winter, H.W. Klug & K. Kranich (eds.), *'Der Koch ist der bessere Arzt'. Zum Verhältnis von Diätetik und Kulinarik im Mittelalter und in der Frühen Neuzeit*. Frankfurt am Main 2014. Mediävistik zwischen Forschung, Lehre und Öffentlichkeit, vol. 8.
[3] Weiss Adamson, op. cit. (n. 1), pp. 16-17.
[4] P.O. Kristeller, 'The School of Salerno', in: *Bulletin of the History of Medicine* 17 (1945), pp. 138-194, in particular pp. 151-154; F.E. Glaze, 'Speaking in Tongues: Medical Wisdom and Glossing Practices in and around Salerno, *c.* 1040-1200', in: A. van Arsdall & T. Graham (eds.), *Herbs and Healers from the Ancient Mediterranean through the Medieval West: Essays in Honor of John M. Riddle.* Medicine in the Medieval Mediterranean, Farnham etc. 2012, pp. 63-83.
[5] Weiss Adamson, op. cit. (n. 1), pp. 50-56.
[6] A.A. Verdenius (ed.), *Jacob van Maerlants Heimelijkheid der Heimelijkheden*. [Diss. Universiteit van Amsterdam] 1917. The dissertation, with a complete transcription of Maerlant's text, can be found online at https://www.dbnl.org/tekst/maer002aave01_01/
[7] Weiss Adamson, op. cit. (n. 1), pp. 18-21.
[8] E. Grant (ed.), *A Source Book in Medieval Science.* Cambridge 1974, pp. 705-715, par. 90 'The Galenic System'.
[9] Weiss Adamson, op. cit. (n. 1), pp. 83-91.
[10] H. Zotter (ed.), *Das Buch vom gesunden Leben. Die Gesundheitstabellen des Ibn Butlan in der illustrierten deutschen Übertragung des Michael Herr. Nach der bei Hans Schott erschienenen Ausgabe Straszburg 1533*. Graz 1988. This edition includes on pp. 155-237 'Die Übertragung der Schachtafeln und des Regelbuches in den heutigen Sprachgebrauch'. For a digitized version of this 1533 post-incunabulum in the Universitätsbibliothek of Vienna, Austria, see: http://data.onb.ac.at/ABO/%2BZ105559106.
[11] *Tacuinum Sanitatis.* Luisa Cogliati Arano (intr.), Nerw York 1976.
[12] Zotter, op. cit. (n. 10), pp. 158-159, 1/1.
[13] Zotter, op. cit. (n. 10), pp. 162-163, 3/1.
[14] Zotter, op. cit. (n. 10), pp. 174-175, 9/2.
[15] Zotter, op. cit. (n. 10), pp. 176-177, 10/7.
[16] See various lexica and manuals on Church history and also J.M. van Winter, 'Fasting and Abstinence in Christianity', in: S.H. Katz & W.W. Weaver (eds.), *Encyclopedia of Food and Culture,* vol. 1, New York 2003, pp. 609-611; reprinted in J.M. van Winter, *Spices and Comfits, Collected Papers on Medieval Food*. Totnes 2007, pp. 267-270.
[17] R. Jansen-Sieben & J.M. van Winter (eds.), *De Keuken van de late Middeleeuwen. Een kookboek uit de 16de century.* Amsterdam 1989, pp.11-15; 2nd edition, 1998, same pages.
[18] J.M. van Winter, 'Sugar, Spice of the Crusaders'. Zagreb 2006, reprinted in Van Winter, op. cit. (n. 16: 2007), pp. 381-388.
[19] Zotter, op. cit. (n. 10), pp. 216-217, 30/1.
[20] Zotter, op. cit. (n. 10), pp. 206-207, 25/1.
[21] Ghent, Royal Academy of Dutch Language and Literature, MS 15, W.L. Braekman (ed.), *Een nieuw Zuidnederlands kookboek uit de vijftiende eeuw*. Brussel 1986. Scripta, Medieval and Renaissance Texts and Studies, 17; C. Muusers, '"Ende dienet ter tafelen." Culinaire recepten uit de middeleeuwen', in: E. Huizenga et al., *Een wereld van kennis. Bloemlezing uit de Middelnederlandse artes literatuur.* Hilversum 2002, pp. 148-167; J.M. van Winter, 'Suiker in de middeleeuwse keuken', in: *Jaarboek 'De Oranjeboom'* 66 (2013), pp. 44-71.
[22] Zotter, op. cit. (n. 10), pp. 158-159, 1/1.
[23] Zotter, op. cit. (n. 10), pp. 164-165, 4/3.
[24] Zotter, op. cit. (n. 10), pp. 162-163, 3/5.
[25] Zotter, op. cit. (n. 10), pp. 164-165, 4/1.
[26] Braekman, op. cit. (n. 21), p. 72, no. 163. A 'lot' was approximately 15 grams, an ounce approximately 30 grams, a pound approximately 360 grams, but there would have been local differences everywhere.
[27] T. Austin (ed.), *Two Fifteenth-Century Cookery-Books*. London etc. 1964, p. 16, nos. 53 and 54. See https://archive.org/details/twofifteenthcentooaustuoft. For transcription see http://www.archive.org/stream/twofifteenthcentooaust/twofifteenthcentooaust_djvu.txt
[28] For example, *Isfidbaja*, (white water gruel), in: Rodinson, Maxime, A.J. Arberry & Charles Perry, *Medieval Arab Cookery, Essays and Translations.* Prospect Books, Totnes UK, 2001, p 55.
[29] Zotter, op. cit. (n. 10), pp. 164-165, 4/3.
[30] Zotter, op. cit. (n. 10), pp. 212-213, 28/7.
[31] Zotter, op. cit. (n. 10), pp. 162-163, 3/5.
[32] Zotter, op. cit. (n. 10), pp. 230-231, 37/7.
[33] Braekman, op. cit. (n. 21), p. 48, n. 72 and p. 102, n. 261.
[34] *Le Ménagier de Paris, traité de morale et d'économie domestique composé vers 1393 par un bourgeois Parisien.* Genève 1966, tome 2, p. 247, 'Pour faire condoignac'.
[35] M. Ouerfelli, *Le sucre. Production, commercialisation et usages dans la Méditerranée médiévale.* Leiden etc. 2008, p. 321; Van Winter, art. cit. (n. 21), pp. 68-69.
[36] Braekman, op. cit. (n. 21), p.102, no. 262; Jansen-Sieben & Van Winter, op. cit. (n. 17), p. 113, no. 143; *Een notabel boecxken van cokeryen. Het eerste gedrukte Nederlandstalige kookboek circa 1514 uitgegeven te Brussel door Thomas Vander Noot.* R. Jansen-Sieben & M. van der Molen-Willebrands (eds.), Amsterdam 1994, De Kans Katernen 4, pp. 67-68, nrs. 173-175.
[37] W.F. Daems, *Boec van Medicinen in Dietsche. Een Middelnederlandse compilatie van medisch-farmaceutische literatuur.* Leiden 1967,pp. 211-212.
[38] *Warmoes ghemeynlic en is niet goed, want et maect waterich bloot* [bloed-jmvw]. *Om medicine maect ment nochtan somtijt als om laxeren, als die lichaem bestopt is of om te cuolen als den lichaem te heet is.*
[39] Daems, op. cit. (n. 37), p. 212.
[40] Daems, op. cit. (n. 37), also p. 212.
[41] Daems, op. cit. (n. 37), p. 195, fol. 117v: een min of voedster moet geen dingen eten die al te heet zijn, 'noch porloec, noch loec, noch ayuun, noch peper.' ('a wet nurse should eat nothing that is hot, 'not leek, nor scallions, nor garlic nor pepper').
[42] H. van Haaster, *Archeobotanica uit 's-Hertogenbosch. Milieuomstandigheden, bewoningsgeschiedenis en economische ontwikkelingen in en rond een (post)middeleeuwse groeistad.* [Diss. Universiteit van Amsterdam] 2003, p. 68, paragraph 5.4.1.3: 'Zo staat het vast dat de middeleeuwse Bosschenaren bijvoorbeeld ook kool, ui, knoflook, rapen en prei hebben gegeten. We hebben er echter niets van teruggevonden.' ('It is known that the medieval inhabitants of 's-Hertogenbosch also ate cabbage, onion, garlic, turnips and leeks. However, we found no evidence of this').
[43] For example, *Notabel boecxken,* op. cit. (n. 36), p. 20 no. 4: almond paste with pureed peas.
[44] For example, *Notabel boecxken,* op. cit. (n. 36), passim.
[45] Daems, op. cit. (n. 37), p. 210.
[46] Zotter, op. cit. (n. 10), pp. 166-167, 5/1-7.
[47] Zotter, op. cit. (n. 10), pp. 170-171, 7/1-7.
[48] Zotter, op. cit. (n. 10), pp. 166-167, 5/1.
[49] Zotter, op. cit. (n. 10), pp. 166-167, 5/5
[50] Zotter, op. cit. (n. 10), pp. 170-171, 7/1.
[51] Zotter, op. cit. (n. 10), pp. 166-167, 5/7and 5/3.
[52] Zotter, op. cit. (n. 10), pp. 166-167, 5/4, 5/5, 5/6.
[53] Zotter, op. cit. (n. 10), pp. 170-171, 7/1-7.
[54] Zotter, op. cit. (n. 10), pp. 170-171, 7/3.
[55] Zotter, op. cit. (n. 10), pp. 170-171, 7/1.
[56] Zotter, op. cit. (n. 10), pp. 212-213, 28/1-6.
[57] Daems, op. cit. (n. 37), pp. 214-215.

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j Essig. Gal. Sie weisen überkamen mit einander von seiner trückne / aber vō seiner hitz vnd kelte seind sye mittzhellig. Dañ etlich sagen/er sey kalt darumb/das er die choleram milter. Sie anderen wöllen er sey heyssz/dieweil er seüdt so man jn off ein steyn schütt/vnd bricht den steyn. Aber die best meynung ist/dz er heyssier würckung sey/aber ußwendig kalt/also ist der vernunfft gemässer/ein ding nach seiner form zů vrteylen / dann nach seiner krafft. Gal. Wiewol er vleicht etwas hitz hatt/so stopfft er doch mit seiner herbe/vnd mit honig zerteylt er/vnd macht subtyl. Büfft dem flegmatischen hüsten. Etlich ärtzt curieren das blůtspeyen damit.

ij Die wurtzel von Asa/ bereyt man mit essig. dann er bringt ein scherpffe darin̄ / dadurch sye die feüchten subtyl macht/vnnd das überig zerteylt. Bringt lust zů essen/denwet/vnnd treibt durch die groben spetsen. als köpff/lebern/nyeren/vnd der gleichen. Vnd so man sye mit einer brů bereyt/ oder mit einer salßen von sawrem kalten essig/so würt sye ein starcke vnd scharpffe speiß.

iij Cucumeren seind gůt so sye lang seind wie citrullen. dann sye treiben den harn / weychen den leib/vnnd löschen den durst. Die Citrullen seind kelter vnd subtyler / von wegen der bittere die darinn ist/hond auch etwas herbe/vnnd denen die sye frisch essen den kompt der durst / zůuo: die choleram im magen hond. Rüben seind heyssz vnd feücht/neeren vil / vnd meeren den samen/sye reytzen den harn/bringen begyrd zů essen/vnnd laxieren oder stopffen nit. Gal. Wann man zwey wasser darüber thůt so man sye seüdt/ vnd bereyt sye darnach mit essig vnd senff/so ist jr wasser gůt für tröpflecht harnen.

iiij Melongianen seind vnderschydlicher complex/nach dem sye new oder alt/ süssz oder bitter seind. dann die alt vnd bitter / die seind heyssz vnd trucken/vnd machen blätterlin im mund. welche aber frisch vnd süssz/die seind kalt vnd trucken. Vnnd roh seind sye schwärlich zů verdewen / aber gesotten wol. So man sye mit essig vnd fleysch mischt/so machen sye lustig zů essen. dann sye stercken den magenmundt. Man soll sye vor speyen mit wassier vnnd saltz ehe man sye bereyt / so seind es gewonliche speiß/ vnd brüfft man nit da d iren schaden. Doch seind sye gebraten am schädlichsten.

v Alandt wurtzel hilfft die speiß dewen / öffnet die verstopffung der leber vnnd des miltz/ sterckt den magen/treibt die speiß hyndurch/stillt die wynd/vnd ist wider den schaden vnd scherpffe des essigs. Cappteß seind heyssz vnnd trucken im dritten grad. So man sye mit essig bereyt/so öffnen sye verstopffung des miltz/vnd der ledern/ erweychen sye so sye hert werden. Sye zerteylen die melancholisch feüchte/weychen den bauch/vnnd streyffen ab das flegma im magen.
B. Cappteß seind ein ärtznetzische speiß. B. sagt/sye helffen dem miltz/wie wermůt der lederen.

vj Zybelen braucht man/die feüchten damit subtyl zů machen / vnnd das sye den lust zů essen erwecken. Sye weychen auch den bauch / reytzen den harn/schwechen das gesycht / vnnd machen gůte farb. Welche zart/oder mittelmässigs leibs seind/die sollen sye meiden/die aber harte leib hond/die brauchens on schaden. Die lang vnd rot/die seind scherpffer/Dann die weisszvnnd trucknen. Rho seind sye besszer dañ weych gesotten. Sye machen aber allsamen wynd/vnd böse feüchten. Den syechen soll man jr nit vil geben

vij Knoblauch braucht man / die groben feüchten zů zerschneiden / den leib zů laxieren. Er treibt auch den harn/öffnet die verstopffung/treibt die wurm vß die wie kürbßkernen seind/macht gůt stym̄/vertreibt den hüsten von kelte. Er ist auch schädlich den augen / dem haubt/nyeren/vnnd der langen/vnd macht durst. Sie temperierten cörper bringt Knoblauch bald von irer temperierung. Wann man yn seüdt bitz sein scherpffe vergath/so benimpt man jm sein gyfft/zůuo: so man yn in essig beyßt/vnd yn mit milch vnnd fischen yssz. Knoblauch ist in summa mee für ein artzney dann für ein speiß zů achten.



Knoblauch. Zybelen. Alantwurtzel. Melongianen. Cucumere/Citrullē. Wurtzel vō Asa. Essig.



ns ons gebreck . is ons van doen . van alderhande soey . laet ons . hier is noc

Daer en comen . gheen kniken . gheen kniken .

Daer en comen . gheen kniken



e Wree . Sijn soet . Is soet . al ge dat proeven wilt wae

die vasten hier inne Soe gaet die vasten

PART III

PLANTS IN MEDIEVAL LITERATURE



8

‘AND IT GREW AND WAXED A GREAT TREE’ A SHORT SURVEY OF PLANTS IN THE BIBLE

Linda IJpelaar

1. ◂
Book of Hours, Masters of the Dark Eyes, Holland, *c.* 1490.
Dim. 195 x 135 mm. The Hague, KB MS 76 G 9, fol. 13v. The tree of Jesse.

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600*.
Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_CH08

Abstract
The Bible is full of plant names. For centuries, the biblical natural world has provided material to ponder, particularly in combination with the illustrations found in medieval manuscripts. This chapter contains a brief review of the research that has been done on biblical plants. Images in the collections of the Dutch Royal Library and Museum Meermanno in The Hague will be included in the discussion: Moses and the burning bush (KB MS 71 A 23), a scroll of parchment depicting Adam and Eve (KB MS 78 B 24), the death of Judas (MMW MS 10 B 21), crown of thorns (KB MS 76 F 2 and MMW MS 10 A 15), Christ holding an apple (MMW MS 10 E 2).

Keywords: biblical plants, burning bush, Adam and Eve, crown of thorns, apple

The title 'Plants in the Bible' probably calls to mind the image of Eden, the paradise where Adam was created and whose first task was to name all of the plants and animals that he found there. Was Eden a real place on earth? Augustine (354-430) thought the answer to that question was unequivocal. He did not doubt for a moment 'that the first people lived in a country rich in forests and fruit that was given the name paradise'. Here there were four rivers: Pishon, Gichon, Tigris and the Euphrates. According to Augustine, the Pishon was the Ganges that flows through India, the Gichon was the Nile that runs through Africa and the last two rivers flowed through Mesopotamia. Other theories about the identity of the Pishon and Gichon rivers were firmly rejected by Augustine. The discussion about the location of paradise sparked by Augustine continued through the centuries and it has remained a mystery, a topic that has been speculated upon until this very day.[1]

As to the discussions about where exactly the first inhabitants of our earth lived, this Chapter will consider the natural world that surrounded them, as revealed by the plants and vegetation mentioned in the Bible. For centuries, the biblical natural world has provided material to ponder, particularly in combination with the illustrations found in medieval manuscripts. Before considering the medieval illustrations, I will first provide a brief review of the research that has been done on biblical plants. Then I will consider the manuscripts in the collections of the Dutch Royal Library and Museum Meermanno, House of the Book, in The Hague. For an explanation of the symbolism of flowers, I refer the reader to Chapter 14 by Anne Margreet As-Vijvers in this book (p. 286).

Research

'It is like a grain of mustard seed that someone took, and cast into the garden; and it grew and waxed a great tree; and the birds of the heavens nestled in its branches' (Luke 13: 19). Scholarly heads have bent over the mustard seed in the parable of Jesus to ponder the interesting question of what type of plant it could actually have been more than two thousand years ago. Although there is not complete agreement, it was in all likelihood the black mustard plant (*Brassica nigra*). White mustard (*Sinapis alba*) has been put forward as equally plausible since it grows in a similar fashion to the black variant. However, and importantly, it is less common in Israel and Palestine.[2] The debate on this topic is a typical example of the controversy that has continued over the centuries among scholars regarding the plants that are named in the Bible and whether or not they actually existed in biblical times and in the places described.

From apples to pomegranates, from calabash to cucumbers, from cinnamon to sage the Bible is full of plant names – one hundred ten in all.[3] During the period before the common era, they were recorded in the first biblical books that were written in Hebrew, the Hebrew Bible, or in Christian terms, the Old Testament. During the first few centuries CE, the New Testament was passed on in Greek, from which translations into Latin and Armenian were made, and later from those languages into numerous other languages. The original writers were not botanists and that makes us wonder if the plants named actually corresponded to vegetation growing in that part of the world at that time. It is known that the Greek translation of the Old Testament, the Septuagint, mentions plants that did not exist in the biblical landscape, but in all probability did exist in Greece at the time of the translation. The same is the case for the Latin translation, the Vulgate. This leads us to question the translations into other, later languages. It was even more complicated for translators because of the fact that the same plant was given different

2.
Guiard des Moulins, History Bible (vol. I, incomplete), Paris *c.* 1320-1340.
Dim. 433 x 320 (293 x 204) mm. The Hague, KB MS 71 A 23, fol. 47r., detail.
Moses and the burning bush.

names over the course of time. Nor did translators always realize that different plants and trees grew in the west than in the east. In addition, it was generally believed until the modern era that Dioscorides, the Greek expert on plants, had recorded every plant in existence, and it was assumed that the plants he had described and drawn in *De materia medica* were to be found everywhere. Errors and substitutions were made in translations. In the seventeenth century, the Protestant Dutch government called for the translation of the Bible into Dutch, which is known as the *Statenvertaling*. It too contains translation errors regarding plants. The plane tree was confused with chestnut, the almond with hazelnut and the Phoenician juniper with heather. The 'new translation' of the Bible in Dutch, *De Nieuwe Vertaling* did recognize that heather does not grow in Israel and translated the Phoenician juniper simply as 'bare bush' (*'kale struik'*).[4]



It was not until the late Middle Ages that people began to undertake field research on plants in their own natural environment. The first to do so were Hieronymus Bock in his 'Herb Book' (*Kreüterbuch*, 1539) and Leonard Fuchs in his 'Notable Commentaries on the History of Herbs' (*De historia stirpium commentarii insignes,* 1542).[5] The first person we know to have undertaken research that concentrated completely on biblical plants was a Dutch doctor named Lieven Lemse (1505-1568), who was born in Zierikzee in the province of Zeeland. Also known as Levinus Lemnius, his work appeared in 1566 and filled 161 pages. It was given the comprehensive title 'A Clear Description of the Plants and Trees that Appear in the Bible from which the Writers who have Studied them have Chosen Similarities and have made them Comply with the Facts; in this Treatise the Places will be Specified one by one where the Prophets Preached their Sermons Supported by the Natural Appearance of the Plants and Trees they had Regarded whose Proclamations were Supported by God' (*Herbarum atque arborum quae in Bibliis passim obviae sunt et ex quibus sacri vates similitudines desumunt, ac collationes rebus accommodant, dilucida explicatio; in qua narratione singula loca explanantur quibus Prophetae observata stirpium natura, conciones suas illustrant, divina oracula fulciunt*). A reprint appeared two years later, followed in 1578 by a translation into English by Thomas Newton: *An herbal for the Bible*. Another work from the sixteenth century is that of Francisco Vallés, numbering 978 pages and entitled 'On the Matters Described in the Holy Scripture regarding Botany, or on Holy Philosophy' (*De iis, quae scripta sunt physice in Libris Sacris; sive, de sacre philosophia, 1588*).[6]

Many titles would follow these works. Plants with a predominantly symbolic meaning are often referred to by a general name with the result that it is difficult to ascertain the precise plant in question. In my opinion, it is impossible to undertake research into these plants. The fact that the symbolic value has taken on a life of its own is in conflict with the search for an actual plant. Or to put it more emphatically, the name of the plant is totally irrelevant; it is only the symbolic meaning that matters. In the following paragraph I will develop this thought through an examination of the burning bush. What makes research into biblical plants so difficult is that certain plants are not native to the areas where the texts were written, but were imported centuries after the Bible was written. Oranges, passion flowers and other plants that fall under the umbrella name of Crown of Thorns were not native. In addition, certain plants and trees have disappeared from the natural environment, due to human intervention. Forests were cleared to harvest their wood or to make way for fields. This particular historical problem has been tackled by the centuries-old study of plants and research into plant fragments (fossils) found by archaeologists. These two avenues make it possible for us today to identify with a great deal of certainty most of the plants referred to in the Bible.[7]

Superstition versus Christianity

As we mentioned above, woods and forests disappeared to make space for arable land, and this included sacred forests


Seth
Enoch
Malaleel
Jared
Enoch
Mathusale
Lamech
Noe
Japhet
Sem
Cham
Cethim
Elam
Assur
Arphaxat
Sale
Heber
Phaleg
Ragau
Sarug
Nachor
Thare
Abraham
Jacob
Judas
Phares
Esron
Aram
Aminadab
Naason
Salmon
Booz
Obed
Jesse
David



3a and 3b.
Scroll of parchment, England, *c.* 1500-1520.
Dim. 9000 x 320 mm. The Hague, KB MS 78
B 24. Genealogy of the kings of England.

and trees. Trees had been objects of worship in Israel since time immemorial. The Hebrew names for 'oak' and 'terebinth' (*allon* and *elah*) are derived from the Canaanite word *el* meaning God. Oaks and terebinths can live for more than a thousand years and their enormous trunks and spreading crowns are majestic to see. From a practical point of view, they are valued for the shade that they provide for humans and animals alike. Rituals were carried out under these trees and important members of the tribe were buried under the most imposing of them. The prophets condemned the worship of sacred trees but even today, the Abraham Oak or *Balut-es-Sebat* is still worshipped on the western bank of the Jordan in Hebron. Tree worship also took place in Europe. People believed that trees were inhabited by spirits and saw them as the link between the underworld, where the roots grew, and the world of the gods, the heavens to which their upper branches reached. With the introduction of Christianity, the worship of trees and other holy places was forbidden. The Bishop of Arles, Caesarius (469/470-542) wrote in his Sermon I, 12: 'Let no one swear a vow to or make an offering to a tree' (*Ut nullus ad arborem vota reddat*). Trees were replaced as holy places by churches, although in some cases nature worship continued to be mixed in with Christianity. In the crypt of the Saint Martin Basilica in Halle, Belgium, there is a space in the tile floor for example, that accommodates a section of the trunk of an oak. It is believed that there was once an oak worshipping cult in Halle.[8]

The story of the burning bush is an example of the significance of plants in the Judaeo-Christian tradition. The third book of Exodus relates how Moses was tending his father-in-law's sheep when he saw a fire that had ignited in a bush and that it was God who had come to speak to him through the fire. Botanists believe that this could be the gas plant (*Dictamnus albus*). This is an herbal plant that can grow to up to a metre high and contains so much ethereal oil that on a hot summer's day, if there is fire in the vicinity, the whole plant can suddenly burst into flames.[9] The story of the burning bush has been a topic for religious paintings. One such example is an exquisite miniature found in a manuscript of the Royal Library of the Netherlands. The manuscript is a *Bible Historiale*, a medieval French Bible dating from approximately 1320-1340 (KB 71 A 23, fol. 47r.).[10] Moses is depicted in the miniature kneeling before God who speaks to him from the clouds in the right-hand corner. Behind Moses the bush is burning brightly (ill. 2). From the tri-colour mosaic-like blocks that make up the background, we can surmise that because of the resulting lack of depth typical for the period, this is a fourteenth-century painting. The shape of the leaves can be seen in the fire and they are depicted with five points, not at all in keeping with the gas plant, which has almond-shaped leaves. They look more like that of the blackberry (*Rubus fruticosus*). That detail was clearly not all that important to the painter. Given the size of the fire towering over Moses, it is clear that it was the symbolic value of the bush that was essential.

Another mythical plant of a completely different sort is the mandrake (*Mandragora officinarum* L. (see ills. 11-14, pp. 154-157). The stories about this plant are numerous and date back to antiquity. Among them was the belief that the root would scream when it was torn from the ground, leading to the idea that it could only be dug up by tying a dog to it. The scream was so deafening that it would kill whoever dug it up, in this case the dog. The root of the plant is often forked, giving it a human form, which was the source of all the myths surrounding it. The mandrake was believed to be an aphrodisiac and in the Middle Ages a love potion was brewed from

5.
Jacob van Maerlant, Rhyme bible, Michiel van der Borch, Utrecht, 1332.
Dim. 350 x 340 (245 x 160) mm. The Hague, MMW MS 10 B 21, fol. 146v., detail.
The death of Judas.

6.
Book of hours, Oudenaarde, Bruges, c. 1450-1460 and 1500.
Dim. 268 x 187 (165 x 110) mm. The Hague, KB MS 76 F 2, fol. 243v. Three angels carrying an instrument of the passion: Crowning of Thorns.

4. ▷
Book of hours, Masters of the Gold Scrolls, Flanders, c. 1450.
Dim. 180 x 128 (98 x 63) mm. The Hague, MMW MS 10 E 2, fol. 35v.
Baby Jesus holding an apple.

it. In addition, the juice from its roots was used as a painkiller during medical interventions. The root itself served as a talisman; it offered the person who wore it happiness, wealth and fertility. The fruit of this stemless plant was mentioned in Genesis.[11] Reuben had given some mandrakes to his mother Leah. She exchanged them with Rachel for a night with Jacob. Rachel who had been childless until then gladly took them because of their power to increase fertility. Thanks to the mandrakes she became pregnant and bore a son, Joseph.[12]

Family Ties

'A shoot will come up from the stump of Jesse; from his roots a branch will bear fruit' (Isaiah 11: 1-2). Trees are a common metaphor for family ties as their trunks, branches, offshoots and fruit are excellent representations of family connections. In the verse from Isaiah and in the New Testament book of





Luke (Luke 3: 23-38), we read that Jesus is a descendant of King David and through him, of Adam, the son of God. Medieval artists depicted these family ties with the Tree of Jesse, an example of which can be seen in a book of hours dating from 1490, now found in the Royal Library of the Netherlands (KB 76 G 9, fol. 13v. ill. 1). At the bottom of the tree the figure who lays sleeping is not Adam, but Jesse, the father of King David.[13] In the middle of the illumination, much larger than the other figures, we see Mary with the baby Jesus in her arms, surrounded by his forefathers.

Interestingly, it was possible in former times to insert yourself into this biblical history, that is, if you were a king. The depot of the Royal Library of the Netherlands holds a parchment scroll measuring nine metres long and dating from about 1460 (KB 78 B 24, ills. 3a and 3b).[14] At the very top of the scroll we see a medallion with a picture of Adam and Eve. Eve is being offered a piece of fruit from the snake, shown in the tree of knowledge of good and evil. Adam already holds one. From the medallion with the naked figures, a tree trunk extends down, drawn as a chain of circles, with branches on either side. The circles contain the names of the first people in the Bible, creating a family tree that includes the English kings. The names of the kings are inscribed in distinctive circles bearing crowns at the bottom of the scroll. In this way the English royal house sought to prove that its members were direct descendants of the first people on earth and inserted themselves into biblical history.

Greenery

The Bible is filled with references to trees. The olive branch that the dove takes back to Noah's Ark is one example, or the fig leaves that covered Adam and Eve's shame and, of course, the fruit that Eve took from the tree of knowledge of good and evil. This last example has provoked considerable discussion. The Bible does not specify the name of the fruit, but the apple became the established attribute in later literature and painting. It is quite probable that this has to do with the association of the apple in antiquity with fertility and sexual passion. The apple is a symbol of love in the myth of Aphrodite, the goddess of love and beauty. And Gaia, the Mother Earth goddess, gave an apple tree as a wedding gift to Zeus and Hera. In the Christian tradition, a strict division was made between body and soul and sexual love was frowned upon. That may explain how the word *malum* in Latin means both 'apple tree' and 'evil'. That may be why the apple became the fixed attribute for Adam and Eve rather than any other type of fruit.[15] The appearance of Mary in the Christian story redeemed the apple. Mary was seen as the new Eve. The gates to heaven that had been closed by Eve, were reopened by the mother of Jesus Christ and through the birth of her son, the new Adam, the dead would be resurrected (I Cor. 15:22 and 45-49). The apple then became the positive counterpart of the fruit from the tree of Paradise and is frequently depicted in paintings of Mary and the Christ child.[16] In an illumination found in a book of hours from around 1450 (MMW 10 E 2, fol. 35v.), Joseph points to the newborn Jesus who holds an apple in his tiny hand (ill. 4).

As we know from the nativity story, shortly after Jesus was born, three wise men arrived in Bethlehem from the East bearing gifts of gold, frankincense and myrrh. The last of the three gifts, myrrh, is a reddish brown gum or resin that is obtained by tapping a tree of the myrrh genus, *Commiphora*. Religious importance had been attached to the resin since antiquity. Along with incense, it was used as a fragrant offering, as was the case every day in the Egyptian sun city Heliopolis during the height of Egyptian civilization. Myrrh was lit as part of a daily ritual when the sun god reached its highest point and greatest strength. It was also used in large quantities along with other ingredients in the mummification of deceased pharaohs, high priests or holy animals.[17] The Bible relates that the resin was used for offerings; it even specifies the different ingredients that were required (Exodus 30:34-35): 'Then the Lord said to Moses: "Take fragrant spices - gum resin, onycha and galbanum - and pure frankincense, all in equal amounts"'. The Christ child receives myrrh because it is linked to the suffering on the cross.[18] Before Jesus was crucified, he was offered a mixture of wine and myrrh to relieve his suffering, but he did not take it (Mark 15: 23). After his death, Nicodemus took a mixture of about a hundred pounds of myrrh and aloe to anoint the body of Jesus. He and Joseph



p. 193 ▶▶
The Hague MMW 10 B 21, f. 146v, see ill. 5.

7.
Biblia Pauperum, Hesdin or Amiens, *c.* 1470. Dim. 360 x 260 (262 x 190) mm. The Hague, MMW MS 10 A 15, fol. 31r.

Mocking of Noah / Mocking of Christ / The children who mocked Elisah are swallowed up.

of Arimathea wrapped the body in linen cloths with the spices, in keeping with Jewish burial traditions (John 19: 39-40).[19]

Biblical borrowings

There are trees that have been given names based on figures in biblical stories. One example is the Judas tree of the Fabaceae family (*Cercis siliquastrum* L.). It is a tree with down-curving branches and heart-shaped leaves that has pink and white flowers in the spring.[20] According to the Gospel of Matthew (Mat. 27:5), Judas hung himself from a tree out of remorse for his treachery. However, a different story is told about how Judas came to his end in the book of Acts (Acts 1:18-19). In that rendition, Judas 'purchased a field with the reward of iniquity; and falling headlong, he burst asunder in the midst, and all his bowels gushed out' (KJV). These two, terrifying stories are combined in a miniature found in the Rhyme Bible of Jacob van Maerlant (MMW 10 B 21, fol. 146v., ill. 5).[21] Van Maerlant wrote a version of the passion story of Jesus Christ in verse in the *Rijmbijbel,* which he finished on 25 March 1271.[22] The text about Judas relates the story as follows: 'Judas left / And hung himself / The belly of the scoundrel split / And his intestines spewed out of his body.'[23] The miniature by Michiel van der Borch in the *Rijmbijbel* shows him both hung and disembowelled. The Middle Ages generally preferred the version of Judas's death by hanging and that is the origin of the myth about the Judas tree. Out of shame, the branches of the tree were said to have bent and hung low, and the white flowers, a symbol of Jesus's tears, turned to pink.[24]

Another tree whose name derives from the Bible is the carob tree or St. John's bread (*Ceratonia siliqua* L.). This tree can grow to ten metres and its edible pods are laden with starch and sugar.[25] The gospel of Matthew (Mat. 3:4) relates that St. John wore a mantle of camel's hair and a leather belt around his loins and that his food consisted of grasshoppers and wild honey.[26] The Bible does not specify that St. John's food came from the pods of this tree but that is what is believed because it was considered to be a low-quality food and only eaten by the very poorest of the poor.[27] The curled pods have small protuberances or 'horns' that look like the antennae of a grasshopper. In Arabic, the word for grasshopper is kharrub, the origin of another name for this tree, the carob.[28] It would seem that St. John ate food that resembled grasshoppers in some way.

Finally, we should consider the Christ thorn or crown of thorns plant (*Paliurus spina-christi* Mill.). This is a bush that grows to a height of three metres and has extremely thorny branches with needle-sharp, pointed leaves. The young branches are not difficult to bend and could have easily been shaped to make a crown for Jesus.[29] A book of hours from Bruges depicts a prickly specimen surrounded by three angels (KB 76 F. 2, fol. 243v., ill. 6). In a French *Biblia Pauperum*, a 'Bible for the poor' from around 1470 (MMW 10 A 15, fol. 31r., ill. 7), the scene painted in the middle of the page depicts a great show of power in the placing of the crown on Jesus's head.[30] The figure on the left has put his left foot on the bench enabling him to apply extra force. Despite the name of this book, it was a beautiful work that would have been made for a wealthy patron. It contains richly decorated illustrations that are well thought out from a theological point of view. Every primary illustration in the centre of the page depicts a scene from the New Testament. These are flanked to the left and right by a scene from the Old Testament that prefigure the event shown in the central illustration.[31] In this example of Jesus with the crown of thorns, we see Noah sleeping off his drunkenness to the left while one of his sons mocks him and the other covers him up. To the right, we see the children who mocked Elisha being devoured by bears. According to theologians, both stories are a prefiguration of the mockery awaiting Jesus in the New Testament.[32] There are many plants that are called Christ thorns. Botanists believe that the most likely candidate for the biblical plant used for the crown of thorns is the shrub-like *Paliurus spina-christi* that is found all over Israel and Palestine. There is also the false Christ thorn (*Gleditsia triacanthos*), but the enemies of Jesus would not have taken branches from this plant to make a crown, as that would have required them to travel to the northeast or central parts of what is now the United States.[33]

Conclusion

About 110 plants are mentioned in the Bible. Given the important role of plants in more ancient traditions and beliefs, it is not surprising that some of these have been adopted and adapted by Christianity. The Bible provides proof of this. The fact that many of the plants in the Bible are not explicitly named by type is an indication that the Bible was not intended as a work of natural history. That leaves room for speculation. There is, in fact, a plant that does easily burst into flames, which could provide a natural explanation of the miracle of the burning bush. Conversely, some Bible stories provided names for known existing plants. The vague references in the Bible allowed medieval illuminators to use their imagination to create their own vision of the natural world in the Bible. The symbolism or the miracle in the story was always the central element.[34]







Versus Pro nobis xpiste: pro bonum precens pie uiste

NOTES

[1] A. Scafi, *Mapping Paradise: A History of Heaven on Earth*. London 2006, pp. 46-47. A recent study is by M.C.A. Korpel & J.C. de Moor, *Adam, Eve, and the Devil: A New Beginning*. 2nd Eng. ed., Sheffield 2015. Korpel and De Moor note the existence of the Adam myth on Ugaritic clay tablets from the late thirteenth century before the Modern Era. The story has similarities to the later Genesis version.
[2] D. Smit, *Plants of the Bible*. Kidderminster 1990, p. 48.
[3] K. Dobat, *Pflanzen der Bibel*. Darmstadt 2012. There are about 110 plants in the Old and New Testaments, see p. 6. M. Zohary, *Plants of the Bible*. Cambridge 1982, p. 15.
[4] Zohary, op. cit. (n. 3), p. 14; F. de Nave, 'From Auxiliary Science to Independent Discipline: Botany in the Southern Netherlands During the 16th Century,' in: F. de Nave & D. Imhof (eds.), *Botany in the Low Countries (end of the 15th century – ca. 1650)*. [Exhib. cat. Antwerp]. Antwerp 1993, pp. 11-18; J. Meulenhoff & S. Nijhuis, *Planten en hun Legenden*. Zwolle 2012, p. 65.
[5] De Nave, op. cit. (n. 4), pp. 12-13.
[6] For a complete historical survey, see 'Historical Sketch' in: H.N. Moldenke & A.L. Moldenke, *Plants of the Bible*. New York 1952, pp. 1-11. For more information on Levinus Lemnius, see www.dbnl.org.
[7] A. Alon, *The Natural History of the Land of the Bible*. Jerusalem 1975, pp. 81-86. Smit, op. cit. (n. 2), p. 8; for more on man and his intervention in the natural world, see 'Man and Vegetation' in: M. Zohary, *Plant Life of Palestine*. New York 1962, pp. 208-212; see 'Plant Remains in Representative Archaeological Sites' in: D. Zohary & M. Hopf, *Domestication of Plants in the Old World: The Origin and Spread of Cultivated Plants in West Asia, Europe and the Nile Valley*. Oxford 1988, pp. 182-189.
[8] Alon, op. cit. (n. 7), pp. 81-86; Zohary, op. cit. (n. 7), pp. 208-212; M. De Cleene, *De Plantencode. De betekenis van kruiden, struiken en bomen in de Europese volkscultuur*. Leuven 2008, pp. 11-16, 212-213; M. De Cleene & M.C. Lejeune, *Compendium van rituele planten in Europa*. Gent 2008, pp. 318-319 ('De Eik in de Bijbel'); Zohary, op. cit. (n. 3), p. 45 and pp. 108-109.
[9] Smit, op. cit. (n. 2), p. 81.
[10] The historical narrative material concerns the Pentateuch, Chronicles and the Gospels. The prophetic (e.g., Jeremiah and Isaiah) and didactic material (e.g., Proverbs and Wisdom literature) are missing in the *historiebijbel*, see M. Kors, 'De Historiebijbel van 1361. Leken en bijbellectuur in de viertiende eeuw', in: A. den Hollander, E. Kwakkel & W. Scheepsma (eds.), *Middelnederlandse bijbelvertalingen*. Hilversum 2007, pp. 49-58, p. 49.
[11] L.J. Vandewiele, *Mandragora ook in de Nederlanden*. Brussels 1962; Smit, op. cit. (n. 2), p. 109; Zohary, op. cit. (n. 3), pp. 188-189.
[12] H.M. von Erffa, *Ikonologie der Genesis*, vol. 2. Munich, etc. 1995, p. 312; De Cleene & Lejeune, op. cit. (n. 8), p. 105.
[13] For more information, see https://debijbel.nl/bijbel/NBV/ISA.11/Jesaja-11
[14] J.P.J. Brandhorst & K.H. Broekhuijsen-Kruijer, *De verluchte manuscripten en incunabelen van de Koninklijke Bibliotheek. Een overzicht voorzien van een iconografische index*. The Hague 1985, p. 132, no. 496.
[15] A. Giesecke, *The Mythology of Plants. Botanical Lore from Ancient Greece and Rome*. Los Angeles 2014, p. 109; M. Schmidt, *Warum ein Apfel, Eva? Die Bildsprache von Baum, Frucht und Blume*. Regensburg 2000, p. 48; De Cleene & Lejeune, op. cit. (n. 8), p. 171.
[16] Schmidt, op. cit. (n. 15), p. 52. See also E. Kirschbaum, *Lexikon der Christlichen Ikonographie*, vol. 1. Rome, etc., 1968, pp. 123-124.
[17] De Cleene, op. cit. (n. 8), pp. 48-52.
[18] G. Schiller, *Ikonographie der christlichen Kunst*, vol. 1, Gütersloh 1966: p. 106: '[W]obei die Myrrhe im Hinblick auf seinen Tod zu verstehen ist' ('Whereby myrrh can be understood in hindsight as a reference to his death').
[19] See also Dobat, op. cit. (n. 3), pp. 140-141; M. De Cleene & Lejeune, op. cit. (n. 8), p. 736 ('De Mirre in de symboliek').
[20] Meulenhoff & Nijhuis, op. cit. (n. 4), p. 69.
[21] C.A. Chavannes-Mazel, *Maerlants Rijmbijbel in Museum Meermanno. De kracht van woorden, de pracht van beelden*. The Hague 2008, p. 144 (ill.), 145.
[22] J. van Aelst, 'Middelnederlandse bewerkingen van het passieverhaal', in: Hollander, Kwakkel & Scheepsma, (eds.), op. cit. (n. 10), pp. 147-157: 148, ill. 36.
[23] Jvdas es wech gegangen / Ende heeft hem seluen verhangen / Die buuc scuerde den kietiif /Die darme ginghen hem vut dat liif. Translation into Dutch by K. van Dalen-Oskam & W. Kuiper in: C.A. Chavannes-Mazel, op. cit. (n. 21), p. 145: 'Judas vertrok van daar en heeft zichzelf opgehangen. De buik van de ellendeling scheurde, zijn darmen puilden uit zijn lichaam' ('Judas left and hung himself. The belly of the wretch ripped open and his bowels hung out of his body').
[24] Meulenhoff & Nijhuis, op. cit. (n. 4), p. 69.
[25] Smit, op. cit. (n. 2), pp. 56-57; Meulenhoff & Nijhuis, op. cit. (n. 4), p. 68.
[26] See also Mark 1: 6: 'John wore clothing made of camel's hair, with a leather belt around his waist, and he ate locusts and wild honey.'
[27] Nowadays, the fruit is used for animal feed and for syrup. Eau de vie is distilled from it (Aguardente de Alfarroba) and it is used as a flavouring for tobacco. The seeds have a uniform weight, generally, and were used by the ancient Greeks to weigh gold. This is the derivation of the measure of weight for gold, the carat. Smit, op. cit. (n. 2), pp. 56-57.
[28] Smit, op. cit. (n. 2), pp. 124-125; Meulenhoff & Nijhuis, op. cit. (n. 4), p. 77. The Hebrew words *hagavim* (locusts) and *haroevim* (carob tree) are very similar; see Zohary, op. cit. (n. 3), p. 63.
[29] The crown of thorns is part of the 'Arma Christi'; see Schiller, op. cit (n. 18), vol. 2, Gütersloh 1968, pp. 198-210; Meulenhoff & Nijhuis, op. cit. (n. 4), p. 77; Smit, op. cit. (n. 2), pp. 124, 125.
[30] For more information on the crown of thorns, see: Schiller, op. cit. (n. 18), vol. 1. Gütersloh 1966, pp. 79-83: 'Die Dornenkrönung und die zweite Verspottung.' Matthew 27: 27-30 / Mark 15: 16-19 / John 19: 2-3.
[31] For more information on this book, see A.S. Korteweg, *Splendour, Gravity & Emotion: French Medieval Manuscripts in Dutch Collections*. [Exhib. cat. The Hague]. Zwolle 2002, pp. 68-69. Paupers's Bibles were known primarily for the block prints included in some copies. Manuscripts have survived from the thirteenth century; A. Henry, '"Biblia Pauperum": The Forty-page Blockbook and The Hague, Rijksmuseum Meermanno-Westreenianum, MS. 10.A.15', in: *Scriptorium, Revue Internationale des Études relatives aux manuscrits. International Review of Manuscript Studies*. 1984 Tome XXXVIII, pp. 84-88; M. Gill, 'Les derniers enlumineurs du Nord à la Renaissance. Ou comment s'adapter à l'invention de l'imprimerie', *Art et Métiers du livre*. nr. 314 (mai-juin 2016), pp. 18-27: 21.
[32] For more illustrations, see: '*Medieval Illuminated Manuscripts*' on the website of the Dutch Royal Library; https://manuscripts.kb.nl.
[33] Smit, op. cit. (n. 2), pp. 124-125; Meulenhoff & Nijhuis, op. cit. (n. 4), p. 77-78. See also Zohary, op. cit. (n. 3), pp. 154-155; the thorny burnet (*Sarcopoterium spinosum*) could also be an option for a crown of thorns.
[34] With thanks to Ilse Slot for help with translations from the Latin.

ABOUT THE AUTHOR

Linda IJpelaar (1970) studied art history at the University of Amsterdam, where she received her Master's degree *cum laude*. Her areas of specialization are iconography and the history of the book. In cooperation with the Royal Library in The Hague and the Edam Museum, she curated the exhibition *Machtige Boeken! De librije van Edam en de Reformatie*. She works on contract as an instructor and contributes to museum exhibitions and publications.

D ese was mer ihūse oec mede
J. die ne stoun re- stede
C n̄ sede te waren du best vā dien
W ant du best a gaukien
M en mager hasē an dme rale
M ar pere- logeners alremale
M er ede en̄ re vasē ic wene
H adde eens gecrayet die hene
W ār her was anden nacht gegaen
C n̄ oner a vile d'na sacen
Q uā malch' nene diene d' of
B edivech dār hme sach mr hof
S dae- man ihūse benoer
D' vloecte pere- en̄ sivoer
D ār hē die man was ombekent
C unē hene cuayede te hant
O nse heir hoerde omme mettien
C n̄ heeft vp pere gesien
D oe penste per' om die vart
D e hi van hem hadde gehaet
C n̄ grne wenede here
D ār hi ghelegent hadde onsen hē
ylde alst dach was
quamē die papē vem cay- sus
D ār- oud' hede menich een
D ar- sarben entei- sar-leen
C n̄ lochtē in menighen here
V alsche cāde van onsen here
N valsche oraude quamen voer
C n̄ seiden wi hebben ghehaet
D ār hi seide dār hi vmochte
B reken den tēpel diemē wivchte
C n̄ 3 dei-daghes maken derme
J. andē sond' haer van mamme
T he sār en̄ sivech sldas
M ertten sonr vp cay- sus
S ide die hem soade node
H i seide biden leuenden gode
M anc di beidn die gone
X pē des leuens gods sone
D u heues gheleur spē onse he
B ede ict dinne geloues nemmere
M ar- hier- na sale gesciem
D ār ghn des mēschē sone salt sien
B itten in sine moggenthede
M er gode ter- rechter- stede.

E mitten sidde comē neder-
T en ionesten mendi als hi wed'
O alomē comē wif en̄ man
D' nucle sal sconwen an
B mecledi- seuer-de cay- sus
C n̄ sade dār ongelone was
D ār ihe spē des bisscops vrient
B eden hi hedde der- doot vdient
T ne emsein spinweden si hem saen
S lo gebaden en̄ genaden
L eden sine daer- sine staren
T ore ponchuse pilaten
J ndie vier-soare ne graen si mer
W ant die regule vbier
T n eens heidens huus regime
D us der ons huars te vstene
A se undas sach dār dus gnic
B eran hem sere dese dme
C n̄ brachte die xxx d' weder
J n den tēpel wā-phise neder-
E n̄ sade ic hebbe mesvrocht
T gherechte bloet hebic vdocht
B i seiden wat gaet dār an
D u sagest en̄ wilt wel nochtan



was es vech gegangen
C n̄ heeft hē selven vhangen
D ie dinne sacer-de den heilif
D ie dat me ginghen hē vur der huf
M ar- in weer met vp wat dagthe
D ār hē geseiede dese plagthe
D es sonrs glose doet gewach
D ār was vanden palsche dach
D ie papē seiden van den gelde
H er waire onrecht dat meint helde.

9

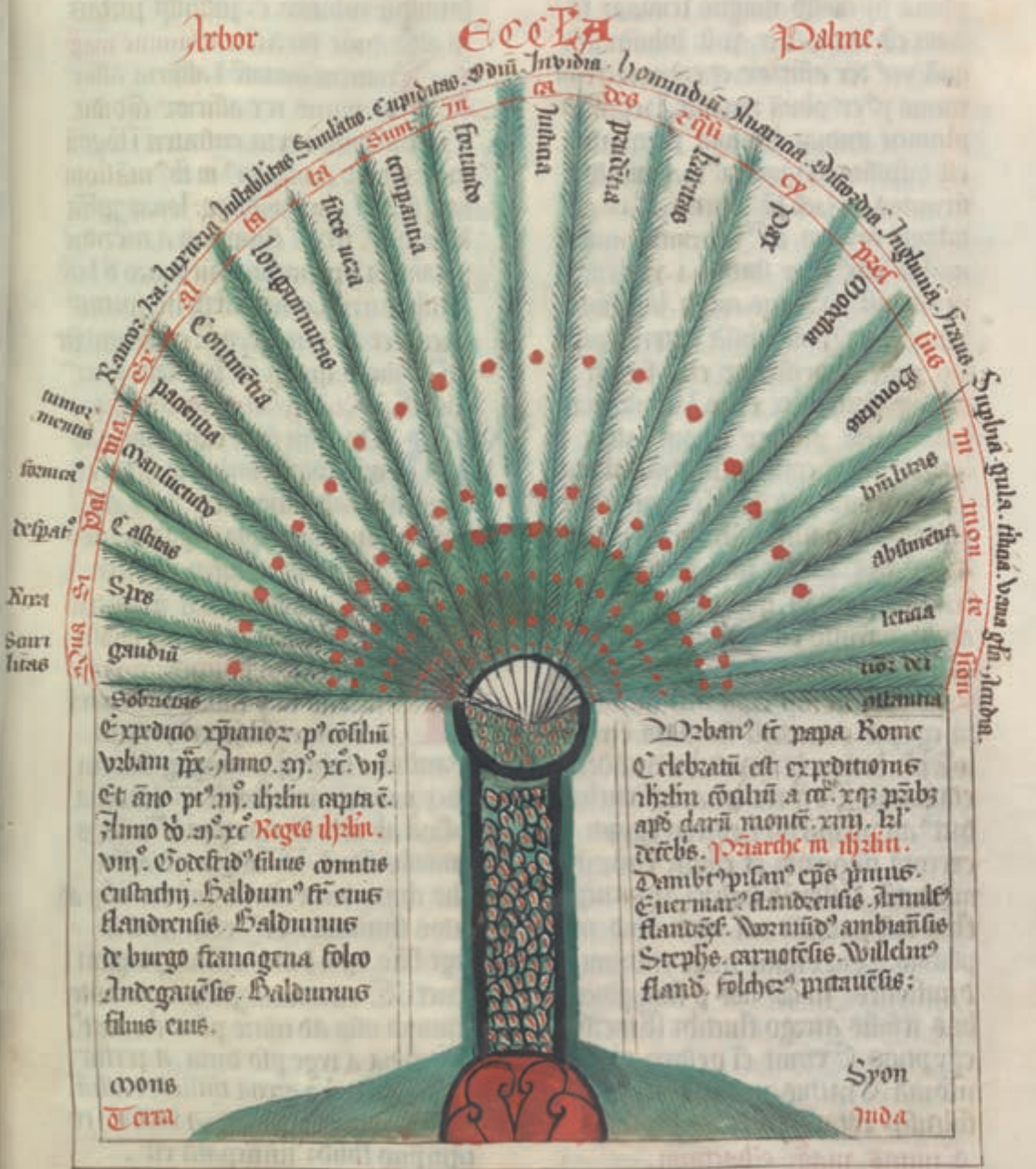
GOOD TREES, BAD TREES
BIBLICAL TREE AND PLANT SYMBOLISM IN THE *LIBER FLORIDUS*

LINDA IJPELAAR

xxvm.

Rust cedrus m lybano: ꝛ cypressus
m mõte syon. et palma m cades. et
plantatio rose m iherico:

Et oliua m campis. ꝛ platanus
mx aquã. et terebinthus. et vitis
dedi suauitatem odoris.



Linda IJpelaar

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600*.
Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_CH09

Abstract
The manuscript entitled *Liber Floridus* (*c.* 1121, Ghent, UB MS 92) contains several enigmatic plant and tree paintings, including depictions of a palm tree, eight plants, a lily, a good and a bad tree, and a tree being cut down. Research into the meaning of these images is based on the two extant copies. The copies in the Royal Library in The Hague are a manuscript from 1460 (MS 72 A 23) and a manuscript dated 1512 (MS 128 C 4). A plant world unfolds that is filled with Christian virtues and values, but that can also symbolise the bad qualities found in man.

Keywords: Liber Floridus, palm tree, lily, virtues

The image of Adam and Eve standing on either side of a tree is the familiar symbol of the fall of man within the Christian doctrine of original sin. Depictions of this scene such as that on page 186 (ill. 3a) are immediately recognizable to us.[1] The painting and accompanying text date from the sixteenth century. The miniaturist took the well-known Bible story and painted it in the standard manner. There are other illustrations of the story, however, that are less easy to interpret. Either there is no accompanying text, even though the illustration is taken from a biblical passage, or there is a text, but the presentation is largely incomprehensible to the modern viewer. One example of such a combination of text and image is the twelfth century *Liber floridus*. The text in this book is not taken directly from either Hebrew scriptures or the New Testament but is based on biblical ideas. We will consider two manuscripts of the *Liber floridus* here, both of which contain a number of remarkable plant and tree paintings. To the modern viewer, who does not spend his or her days poring over medieval books, these paintings will certainly seem unusual. We will consider six pages of paintings and texts, with the emphasis on the interpretation of the painted image. But first we start with a brief description of this remarkable book before we move on to discuss its enigmatic depictions.

Liber floridus

'A heavenly meadow in which the "flowers of literature" bloom to attract believers with their sweetness.' That is how the author Lambert of Saint-Omer describes his *Liber floridus* ('Book of Flowers'), that he probably finished around 1121. His work has not been lost: no fewer than nine manuscripts from the twelfth to fifteenth centuries have come down to us.[2] The title of the book and its description by the author would seem to suggest that the book is about flowers, but nothing is further from the truth. Curious diagrams, constellations, signs of the zodiac, symbolic representations, cityscapes, maps and animals fill the pages of this book and, while leafing through it, one finds from one surprise after another. Lambert's 'flowers of literature' actually refers to an anthology by authoritative Christian authors, such as Augustine and Hieronymus. Lambert feared that the work of these writers would become lost and, in order to prevent this from happening, he included excerpts of their writings.[3] In addition to his desire to enrich the spiritual life of the reader, Lambert also wanted to amaze the reader with all the wonders of the world, with the ultimate goal of increasing his or her love for the Creator. His presentation of these writings is unusual.

Text and image are not independent from each other but form a unity that results in what we could call a 'pictorial encyclopaedia'. Facts and theories blend together in the images, which become autonomous units.[4] That may sound complicated, but a number of examples will clarify what we mean. The two manuscripts we will consider are preserved in the Koninklijke Bibliotheek (Royal Library) of the Netherlands in The Hague. The first manuscript dates from 1460 (MS 72 A 23), in other words, three centuries after Lambert of Saint-Omer's original work. It is a handwritten book that was made for Pierre de Goux et de Wedergraete (d. 1471), a councillor of Philip the Good. The book later came into the possession of Philip of Cleves, a nobleman who lived from 1459 to 1528. It would seem that the latter could not read Latin very well since he commissioned a French translation of the work. It was presented to him in 1512 and was entitled *Le livre fleurissant en fleurs.* This is the second manuscript in the depot of the Koninklijke Bibliotheek (MS 128 C 4) that we will consider.[5] It is truly unusual that the original text, the autograph made by Lambert, is still extant, complete with texts and illustrations. This twelfth century manuscript is now housed in Ghent (*c.* 1121, Ghent, UB MS 92) and we shall refer to it a number of times for clarification and comparison.

A curious fan

There is an illustration in the fifteenth-century book that, upon first glance, is not all that easy to identify (ill. 1).[6] It is a curious fan with written text incorporated into the image. But then again, is it a fan or is it a peacock's tail? What is it really? As it turns out, it is a palm tree. The fifteenth-century copyist imitated Lambert's palm tree precisely, as did the copyist of the sixteenth-century version (ill. 2).[7] The palm tree or palm branch are familiar elements in Christian imagery. The palm

1. ◄
Lambert of Saint-Omer, *Liber floridus*, Lille and Ninove, 1460.
Dim. 408 x 286 (304 x 215) mm. The Hague, KB MS 72 A 23, fol. 37r.
Palm tree symbolising the church.

2.
Lambert of Saint-Omer, *Le livre fleurissant en fleurs*. Translation in prose of Lambert of Saint-Omer's, *Liber floridus*, Edingen, 1512.
Dim. 375 x 270 (265 x 220/175) mm.
The Hague, KB MS 128 C 4, fol. 69v.
Palm tree symbolising the church.

tree appears regularly in the Bible as the symbol for such things as life, blessing and paradise.[8] It is therefore not surprising that the symbol of the palm should also be linked with Christ. Upon Jesus's entry into Jerusalem, we read that the crowds spread out clothing and branches on the road before him.[9] These branches are frequently portrayed in art works as palm branches. Moreover, martyrs are often portrayed with a palm branch. They converted to Christianity in the face of opposition, were tortured and died for their beliefs. That is not the end of the story, however, as their death is followed by eternal life in heaven. In pictorial representations, the palm branch represents their ultimate triumph, and it became a general symbol of martyrdom.[10]

Lambert borrows the *Arbor Palmarum* here as a symbol of the victorious Christian church.[11] He has made this clear by writing the word *Ecclesia* (church) above the palm tree. Between the leaves of this tree, he inscribed 22 virtues, from *sobrietas* (sobriety), found on the far left, to *constantia* (constancy, faithfulness) in the foliage on the right.[12] There is no place in the victorious church for sin and sins are kept literally and visually outside it, they are banned from the leaves. The first words in the inner margin are somewhat difficult to read: *scurrilitas* (buffoonery), *rixa* (strife, fighting), *desperatio* (despair), *fornicatio* (fornication) and *tumor mentis* (pride). The final sin to be mentioned on the far right is *accidia* (sloth) as the opposite of *constantia*.[13] The palm tree stands on mount Zion, one of the hills of Jerusalem. To the left and right of the tree, Lambert placed texts referring to kings and patriarchs in Jerusalem after it was conquered by the first crusaders in 1099.[14] There were only 22 years between the conquest of Jerusalem and the completion of the *Liber floridus*.[15] In it, Lambert created a direct link between this historical event and the victorious church, presented in his illustration in the symbolic form of a palm tree.

Eight plants

The palm tree is not the only remarkable painting in Lambert's book. On folia 90recto and 90verso we find eight depictions of beautiful plants (ills. 3a and 3b).[16] The fan-shaped palm leaf on the bottom left of folio 90recto is now recognisable to us. With a bit of imagination, we can also discern grape vines on the bottom left in the illustration on folio 90v. Yet aside from these two, it is difficult to identify the plants that are represented, and a standard plant guide would probably not offer us much help. A century after Lambert finished his book, the copyist, true to his name, did simply copy the plants, making no attempt to depict them according to nature (ill. 4).[17] They also look a bit pale, but that was just a question of style, and this was considered attractive at the time (see the Chapter by As-Vijvers in this book, p. 266).

Fortunately, Lambert wrote the names of the plants next to them in Latin, so that after some research and translation, we can determine what they are. Once again, the important aspect of the flora is not the plants themselves but their symbolism. The cedar is depicted on the top left, above which is written: '*Vox ecclesie. Quasi cedrus exaltata sum in lybano; humilitate per quam beati pauperes spiritu. Beatitudo virtusque prima*' ('The voice of the church. As a cedar of Lebanon, I will rise up; with the humility for which the poor in spirit are blessed I shall rise up. The first beatitude and the most important virtue'). The cedar is associated with humility and



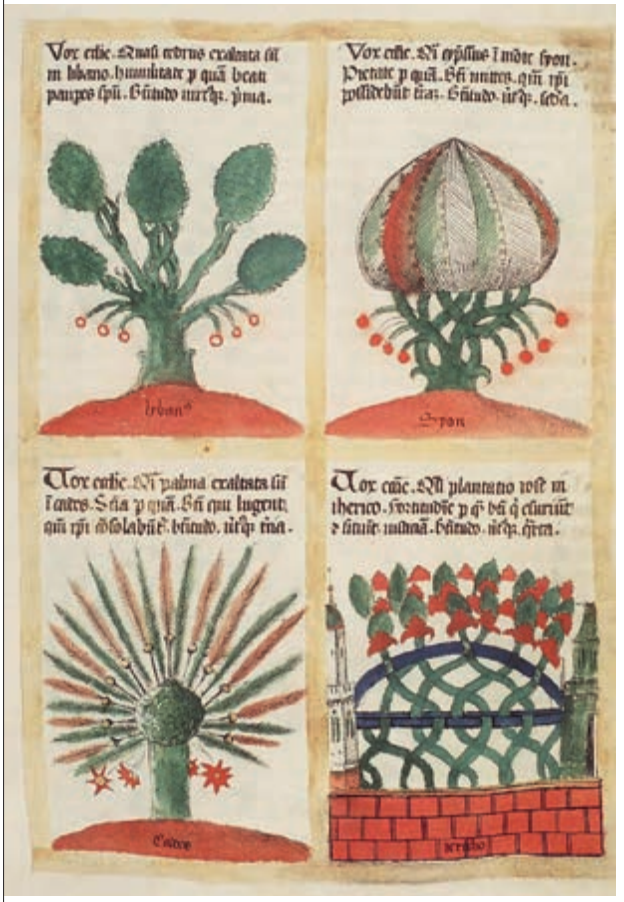
3a en 3b.
Lambert of Saint-Omer, *Liber floridus*.
The Hague, KB MS 72 A 23, fol. 90r.
The Hague, KB MS 72 A 23, fol. 9v.
Plants that symbolise eight beatitudes.

the first beatitude (*beatitudo prima*). 'Lebanon' (*Lybanus*) is written under the illustration of the plant.

It soon becomes clear that the plants depicted here all are related to the eight beatitudes of Christ.[18] These are the eight proclamations made by Christ in the Sermon on the Mount to his disciples as related in the Gospel of Matthew (Matthew 5: 1-12).[19] Lambert draws a connection between the text and the Book of Wisdom of Joshua, son of Sirach, the deuterocanonical book Ecclesiastes, in which the eight trees are named.[20] On each page, Lambert depicted these plants and trees, along with their associated virtues, respectively from left to right and from top to bottom. [21]

Fol. 90r.:
Cedar of Lebanon, *Humilitas*, humility
Cypress of Mount Zion, *Pietas*, piety
Palm, *Scientia*, knowledge
Rose of Jericho, *Fortitudo*, courage/bravery

Fol. 90v.:
Olive tree, *Consilium*, good judgement
Plane tree, *Intelligentia*, intelligence
Turpentine tree, *Sapientia*, wisdom
Grape vine, *Temperantia*, moderation





4.
Lambert of Saint-Omer,
Le livre fleurissant en fleurs.
The Hague, KB MS 128 C 4, fols. 189r.-189v.
Plants that symbolise eight beatitudes.

What is so exceptional about the cedar of Lebanon that Lambert would include it here? As we have remarked, the cedar is associated with 'humility' in the beatitude and in a text from Ecclesiastes. We shall take a closer look at this. Jesus says in the first beatitude, 'Blessed are the poor in spirit, for theirs is the kingdom of heaven.'[22] Humility in a lesson by the prophet Ezekiel is associated with the cedar (Ez. 17: 22-24 KJV):

> Thus saith the Lord God: I will also take of the highest branch of the high cedar and will set it; I will crop off from the top of his young twigs a tender one and will plant it upon an high mountain and eminent: In the mountain of the height of Israel I will plant it: and it shall bring forth boughs, and bear fruit, and be a goodly cedar: and under it shall dwell all fowl of every wing; in the shadow of the branches thereof shall they dwell. And all the trees of the field shall know that I the Lord have brought down the high tree, have exalted the low tree, have dried up the green tree, and have made the dry tree to flourish: I the Lord have spoken and have done it.[23]



The importance of the cedar in Christian imagery is borne out by the many times that it is mentioned in the Bible. In the Old Testament alone it is mentioned seventy-five times.[24] In Lebanon in antiquity, there were extensive cedar forests with beautiful specimens that were the 'glory of Lebanon' (*gloria Libani*), an image of the kingdom of God in Isaiah (Isa 35: 2; 60: 13) and Ezekiel (Ez. 31). If the cedar is a symbol of humility, it is actually because of its majesty. Majestic as it was, God could decide to make it small and have it bend to his will. This majesty is also found in biblical symbolism, where it represents the Exalted, the Supreme, the Everlasting.[25] We find this in the book of Sirach (24: 13): 'As a cedar of Lebanon I raised myself up.'

Such an exceptional tree must also be of exceptional wood. It was believed that the wood was so durable that it was considered to be 'immortal'. Whoever possessed a cedar, possessed the symbol of immortality.[26] Consequently, the step from cedar wood to Christ was not all that difficult to make. Even stronger, the cedar represented Christ. Mary was often compared to a cedar as well: 'I was exalted like a cedar in Lebanon, and as a cypress tree on Mount Zion. I was exalted like a palm tree in Cadiz, and like a rose plant in Jericho. As a fair olive tree in the plains, and as a plane tree by the water in the streets, was I exalted.'[27] All this greenery is also represented in the pages of the *Liber floridus*, as plants that serve as symbols for the virtues of the victorious church.

The following page, fol 91r., lists a number of trees, plants, herbs and flowers that Lambert sub-divides into various categories. Firstly, there are *arbores,* numerous types of trees, starting with the eight types named above. Then come fragrant trees (*arbores aromatum*) that include incense, myrrh and aloe. Next are fragrant herbs (*herbe aromatum*) such as spikenard, but also including the rose. These are followed by vegetables (*herbe olerum*) such as parsnips and radishes and, finally, fragrant types of vegetables (*holera odorifera*) including parsley and coriander.[28] In Lambert's time, it made perfect sense to include a list of plants next to the theological illustrations of the eight beatitudes.





5. ◁
Lambert of Saint-Omer, *Liber floridus*.
The Hague, KB MS 72 A 23, fol. 36v. Lily.

6. ◁
Lambert of Saint-Omer,
Le livre fleurissant en fleurs.
The Hague, KB MS 128 C 4, fol. 69r. Lily.

7.
Lambert of Saint-Omer, *Liber floridus*.
St. Omaars, c. 1121.
Dim. 327 x 239 x 119 mm. Ghent,
UB MS 92, fols. 230v.-231r. Lily.

A thorny lily

A beautiful lily is depicted on fol. 36v. of the earliest copy of the book (ill. 5).[29] The coloured version was replaced a century later by a colourless pen drawing (ill. 6).[30] Interestingly enough, both versions are closer to the actual appearance of the plant than the original illustration in which the lily seems to have thorns on its stem (ill. 7).[31] Could this be another reference to the victorious church? Or is the lily a symbol relating to Mary here? Many illustrations of the Annunciation, in which the angel Gabriel announces the coming birth of Jesus, include a lily as symbol of her purity.[32] But was Lambert concerned with purity here? Above the lily are the words: '*Sicut lilium inter spinas sic amica mea inter filias*.' That is a passage from the Song of Solomon: 'Like a lily among the thorns, so is my love among the daughters' (Sol. 2: 2). Medieval commentators interpreted this text to symbolise Jesus among his tormentors. There also seems to have been a connection between the plant and the church that found itself 'in the midst of the daughters of Babylon' according to a contemporary of Lambert, the writer and theologian Honorius of Autun, (1080-1154). The latter used this image to describe the church as surrounded by enemies, and Babylon as a land of heathens.[33]



9.
Lambert of Saint-Omer, *Liber floridus*.
Ghent, UB MS 92, fols. 231v.-232r.
Tree of virtues and tree of vices.

Texts are inscribed on both sides of the lily stalk. On the left we read *Scs sps,* an abbreviation for *Sanctus Spiritus* (Holy Ghost). Underneath that is written *Septem dona eius* (seven virtues) which consist of: *karitas* (charity), *simplicitas* (sincerity), *mansuetudo* (kindness), *patiencia* (patience), *innocentia* (altruism), *abstinencia* (temperance), *compunctio* (humility). To the right of the stalk are the seven arts (*septem artes*), listed under the word *Phylosophia*.[34] Since antiquity, these arts have been considered as the foundation for gaining general knowledge. In the Middle Ages they formed the framework of the organization and content of Christian education: *grammatica* (the correct use of language, i.e. Latin), *rhetorica* (rhetoric or the art of speaking), *dialectica* (the art of argumentation), *arithmetica* (arithmetic), *geometrica* (geometry), *astronomia* (astronomy or knowledge of the stars and planets) and *musica* (the art of the muses, in particular music).[35] Lambert combined the seven virtues and the seven arts, and interestingly for us, accompanied them with two lists of plants.

The plants named under the virtues are plants that we had already seen in the book of *Sirach* and that are associated theologically with the eight beatitudes. The plants listed under the seven arts are medicinal in character and Lambert places these fragrant plants under 'aromatic herbs'. They include: *Thymum* (thyme), *Myhrra* (myrrh), *Storax* (styrax), *Amomum* (cardamom), *Aloen* (aloe), *Calamus* (sweet flag), *Balsamum (balsam)*, *Nardus* (nard, the name for a number of sweet-smelling plants, e.g., lavender), *Costum (Costus), Lilium* (lily), *Crocus* (saffron) and *Acanthus* (Bear's breeches).[36] It would seem that Lambert wanted to associate the lily, symbolic for the church, with all that is good. However, in the following pages it emerges that not everything that is green is good.

Good and bad trees

In the fifteenth-century manuscript we find leaves and medallions depicted on fols. 185r. and 185v. that appear to be mirror images of one another (ills. 8a and 8b).[37] Closer inspection however reveals important differences. The illustrations on the recto side (ill. 8a) are more colourful, with medallions containing portraits of women, some of which have a blue background. Flowers and extra greenery have been added around the portraits. In contrast, the verso side is plain and sombre in appearance. The medallions contain only texts and there are no extra flowers or leaves added to the page. The contrast between the colourful and the colourless is reinforced by the titles Lambert has given the two pages: *arbor bona* (good tree) and *arbor mala* (bad tree). Lambert does not mince words: the good tree is *ecclesia* (the Christian church) and the bad tree *synagoga* (the Jewish community).

Ecclesia is a blossoming tree and Lambert hangs it full of medallions containing female portraits that personify the virtues: *caritas* (charity), *continentia* (temperance), *fides* (faith), *longanimitas* (forebearance, tolerance), *mansuetudo* (kindness), *spes* (hope), *patientia* (patience), *castitas* (chastity), *gaudium* (joy), *sobrietas* (sobriety), *pax* (peace), *bonitas* (goodness) and *modestia* (modesty or restraint). These female personifications of virtue all wear a headscarf or other covering on their heads. They look in various directions to point the viewer towards what is good. Only one of them, the crowned *fides* (faith), looks directly at us.[38] She is linked to a pine forest that is above her to the left, just as the other female personifications are linked to other plants.[39] Several of them are encircled by beautiful garlands of lilies, roses and hyssop. The names of the flowers



entwined in the garlands cannot be seen here, but we can identify them from the original version found in Ghent (ill. 9).[40] The impact of showing the trees as mirror images is more effective in this manuscript than in later versions because they meet in the fold of the opened folia and one does not have to turn the page to compare them. In addition to the version from 1460 (ills. 8a and 8b) there is one from 1512 in which the reader does have to turn the page to view the mirror image of the tree and this reduces the effect (ills. 10a and 10b).[41] As we stated above, the use of colour is more restrained here, but that was simply a matter of taste.

In all versions, *Caritas* is placed at the foot of the good tree, and not by chance. Lambert explains in the accompanying text the relationship between the tree and this virtue: '*Sicut ex una arboris radice multi rami prodeunt, sic multe virtutes ex una karitate generantur*' ('Just as many branches grow from the roots of one tree, many virtues are created from the one virtue of charity'). And, indeed, Lambert placed charity at the foot of the tree, close to the roots, from which all the other virtues stem. The similarity between the good tree and the virtues he explained as follows: '*Arbor bona, que est regina a dextris Dei, varietate circumdata, id est fidelium Ecclesia, virtutum diversitate amicta*' ('The good tree, that is the Queen at the right hand of God, surrounded by many colours, represents the church of believers, dressed in a variety of virtues').[42]



In contrast to the colourfulness of the good tree, the bad tree is monochrome and dull. It has only green leaves of the same pattern. The virtues in the medallions of the good tree are replaced with vices that are described in detail in the medallions of the bad tree.[43] We read in the medallion at the foot of the bad tree: '*Cupiditas, id est auaritia, inde proditio, fraus, fallacia, periuria, inquietudo, uiolentia oriuntur*' ('Avarice, that is to say, greed, from which springs betrayal, deception, deceit, perjury, unrest and violence'). Written in one of the medallions is: '*Inimicitia, inde inobedientia, iactantia et hypocrisis generatur*' ('Enmity, from which disobedience, boasting and hypocrisy are born'). The proclamations in the other medallions, unfortunately, are no more uplifting.[44] Lambert's intention in the depictions of the good and the bad trees was to illustrate his contention that Judaism and Christianity have the same roots, but that from the very beginning they diverged because the Jews in their blindness refused to recognize Jesus as their messiah. According to Lambert, this is the source of all their vices, the fruits of this mistake. The underlying idea is that the bad tree, Judaism, must disappear.[45]

The *ficulnea* (fig tree) is singled out as the bad tree, a withered specimen, and the choice of the fig is not coincidental. In the New Testament, Jesus approaches this tree after his triumphant entry into Jerusalem riding a donkey, where the people had spread out their clothes on the road and laid down branches to honour him. He looked into the temple and then withdrew with his followers. The next day, hungry, Jesus approached a tree hoping to find something to eat. It was a fig tree that was covered in leaves but did not yet bear any fruit. This caused Jesus to curse the tree with the words: 'May you never bear fruit again.' Jesus and his disciples then entered the Temple where they encountered innumerable questionable activities. The Temple had been turned into a bandit's den. The following day when Jesus and his disciples saw the fig tree again, it had died down to its roots.[46] At the foot of the dead tree in the *Liber floridus* we see two axes depicted, making reference to another biblical text in the New Testament: 'The axe is already at the root of the tree and every tree that does not produce good fruit will be cut down and thrown into the fire.'[47]

A king as a lumberjack

On the following page Lambert again painted a tree and an axe, but this time in a completely different way, which later copyists reproduced.[48] This time the axe is in the hands of a

8a and 8b.
Lambert of Saint-Omer, *Liber floridus*.
The Hague, KB MS 72 A 23, fol. 185r
Tree of virtues.
The Hague, KB MS 72 A 23, fol. 185v.
Tree of vices.

man (ills. 11, 12).[49] This person is clearly of high standing, as he is painted in fine clothing and wears a crown on his head. At the foot of the tree, or rather under the roots of the tree, there is a bed in which someone appears to be sleeping unsuspectingly. His hand is cupping his ear: can the blows of the axe be heard? A striking detail is the ring around the tree, just under the place where the axe has struck. All together the page presents a curious scene that was observed in the left top corner by Christ carrying a sword. Is this again a bad fig tree that is being chopped down as on the previous page? The variety of leaves and flowers on the tree would seem to suggest a good tree, but why then must it be cut down? The short Latin texts accompanying this illustration offer a clue. The text to the right of Jesus explains that the tree was cut down, the leaves had fallen off, the fruit was scattered but for seven years the stump remained moist in the ground. To the left of this text there is another text in black ink that could have served as the title of the page, and partially clarifies the scene. The image portrays the dream of Nebuchadnezzar, the king of the Chaldeans, whose dream was interpreted by the prophet Daniel.[50]

The story of this dream, the second of Nebuchadnezzar's dreams, is found in the Old Testament book of Daniel. It relates how Nebuchadnezzar tells Daniel of the images he saw in his sleep and asks Daniel to explain them to him. Nebuchadnezzar relates that he saw a tall tree that reached into the heavens and spread over the whole earth with its branches. The leaves were beautiful, the fruit was abundant, and every living thing was fed by the tree. An angel descended from the heavens and proclaimed that the tree, encircled by a ring of iron and bronze, must be cut down, but that the roots



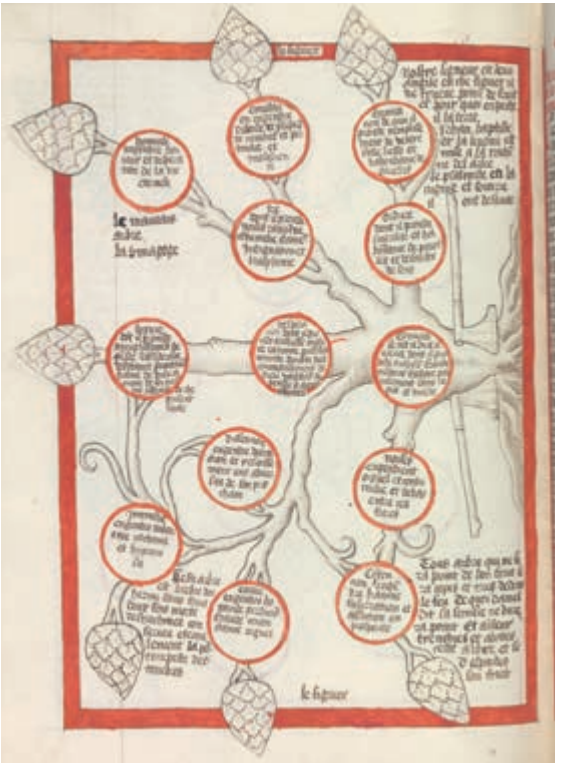


10a and 10b.
Lambert of Saint-Omer,
Le livre fleurissant en fleurs.
The Hague, KB MS 128 C 4, fol. 397r.
Tree of virtues.
The Hague, KB MS 128 C 4, fol. 397v.
Tree of vices.

and stump must remain in the ground. The stump would remain moist from the dew of heaven and its heart would no longer be the heart of a man but that of an animal, and that seven years would pass. Daniel explained to Nebuchadnezzar that the tree he had dreamed of was Nebuchadnezzar himself and that the judgement of God would come upon him. He would be rejected by the people and forced to live among the animals of the fields and would be damp with the dew from heaven. Seven years would pass before Nebuchadnezzar recognized that the authority of the Almighty God was higher than that of a human king of men and that it is God who determines who will be called king. The fact that the stump did not die meant that Nebuchadnezzar's rule would continue as soon as he recognized the power of the Almighty. Daniel advised him to concern himself with the poor in order to continue holding his position and well-being.[51] Seemingly, Nebuchadnezzar conducted himself appropriately at first, but this did not last long. After a year, his arrogance was punished by a voice out of the heavens, saying: 'The throne is taken from you.' Only after seven years did he recognize the power of the Almighty and regain his reason.

The biblical story explains a great deal about the intention of the painter in this scene. Nebuchadnezzar is sleeping in his bed and the tall, fruit-bearing tree of which he dreams is clearly depicted. Around the tree trunk the ring of iron and bronze is already visible, and the tree will be cut down. The handsome clothing of the lumberjack is striking and is not mentioned in the biblical story of the king's second dream. It is apparent that details from the two dreams have been combined and that the beautiful clothing appears in the





first dream of Nebuchadnezzar's that had already been explained by Daniel.[52] In a nutshell: in the first dream, Nebuchadnezzar encounters a huge figure with a frightening appearance. Its head is made of pure gold, its chest and arms of silver, its belly and loins of bronze, legs of iron and feet part iron, part clay. The statue is felled by a stone and this stone eventually becomes a high mountain covering the entire earth. Daniel explains to the king that the golden head is Nebuchadnezzar himself. After his reign, there will be a few other kingdoms, one of silver that is less powerful, followed by one of bronze that will reign over the world, and finally a kingdom that is hard as iron and will crush all the other kingdoms. Because the statue's feet are made of iron and clay, the kingdom will be both strong and vulnerable. The moral of the story is that the last kingdom is the kingdom of God, that will never fall and never be conquered by another people. When we digest this story and look at the painting again, it is evident that Nebuchadnezzar is the king represented here. The texts to the left and right of him have to do with the parts of the body of the statue figuring in his dream and the metals they are made of. To the right is an extra text in red enumerating the eras of the world: from Adam to Noah, from Noah to Abraham, from Abraham to David, the era of the departure from Babylon and finally the era of Christ.[53] Cutting down the tree symbolises the fall of Babylon.[54] As we have noted earlier, Babylon stands for the unfaithful, non-Christian world. We can now make a link between the previously mentioned fig tree and the tree in Nebuchadnezzar's dreams. Both are representations of the non-Christian world.

Tree in a city

There is one 'green' illustration in the original version from 1121 that is not found in either of the later handwritten books in the collection of the Royal Library of the Netherlands. We will consider it here because it ties in neatly with the illustrations we have just examined (ill. 13).[55] The 'enigmatic' image appears rather simple and straightforward, in comparison to the *Liber floridus* illustrations. Moreover, the title above the image even tells us what we are looking at: 'Paradysvs' (Paradise). But what does this paradise – a city encircled by a wall with a tree in the middle – have to do with the more common depiction of the paradise of Adam and Eve? To understand this, we must return to the story of the Garden of Eden where Adam and Eve first lived. According to Genesis, in the middle of the garden were the tree of life and the tree of the knowledge of good and evil. God forbade man to eat from this tree: 'You are free to eat from any tree in the garden. But you must not eat from the tree of the knowledge of good and evil, for when you eat from it you will certainly die.' After Eve and Adam, despite this command, ate from the fruit of the tree, they were banished from Eden. God wanted to make sure that they would not pick the fruit of the tree of life, because if they ate from it, they would gain eternal life

11.
Lambert of Saint-Omer, *Liber floridus*.
The Hague, KB MS 72 A 23, fol. 184v.
Dream of Nebuchadnezzar.



(Gen. 3:22). Once banished from paradise, Adam worked the land 'by the sweat of his brow' and Eve bore three children in pain: Cain, Abel and Seth.

The last of the children, Seth, did something remarkable for his elderly father Adam by returning to the garden of Eden. This story is not biblical but from the legend of the wood of the true cross.[56] According to this legend, Adam was aged and felt his end near. He called Seth to him and asked him to go back to paradise to fetch a few drops of the oil of mercy, that oozed as a sort of resin from the tree of life. Seth would be able to find the way to paradise by following the footsteps of Adam and Eve. When they had been expelled from the garden, the places where they had placed their feet scorched the earth and, as a sign of punishment for their sin, no grass grew there ever again. When Seth arrived at the gate of Eden, an angel with a flaming sword awaited him, and allowed him to take three looks at paradise. His first look showed him the beautiful garden, the spring and the four rivers that flowed from it, as well as the tree of life, which was bare. His second look showed him the serpent that was wrapped around the trunk of the tree. And his third look showed him the tree that reached into the heavens and whose roots extended down into hell. He saw the soul of his brother Abel and high in the tree a new-born child, the son of God. Seth did not succeed in taking any of the oil of mercy but did take three seeds from the tree of life to be put under the tongue of Adam.

According to the story, Adam laughs for the first time in his life when Seth recounts the tale of his journey. Thereupon Adam dies. From these seeds, three trees grow on his grave: a cedar, a cypress and a pine tree. They are evergreens and never grow taller than an ell and, until the arrival of Moses, continue to stand in the valley of Hebron. Moses has the trees dug up and uses the wood from one of them to strike the rock, causing water to flow out of it. He uses the wood from another to make a stake, to which the copper snake is attached, to save the people of Israel. Moses replants the three trees on mount Tabor where he will later die and be buried. One thousand years later, God orders king David to bring the three trees to Jerusalem and plant them in a pit. There they grow together and become one tree. King David bewails his adultery with Bathsheba under this tree and writes the psalms there. His son Solomon has the tree cut down, planning to use the wood for the building of the second temple. However, the wood proves to be unusable because the beams are either too long or too short. Solomon decides not to use them in the construction of the temple, but to place them in front of the temple to be honoured. One day, a woman named Maximilla decides to go to the temple and sits on the stack of beams. Her clothing immediately bursts into flames, and she screams, 'O my Lord God, my Jesus'. The Jews hear this, seize her and drag her out of the city where she is stoned. This made Maximilla the first martyr of the cross. The beams are thrown into the pool of Bethesda and an angel comes down from heaven to bless the water and give it healing power. The beams are taken out of the water and a bridge is built with them over the pool of Siloam. When the Queen of Sheba arrives to visit Solomon, she refuses to walk over the bridge, preferring to wade through the spring that feeds the pool. She worships the wood and speaks prophetic words about the coming of Christ. It is this wood, ultimately, that will be used to make the cross on which Jesus would be crucified, thereby saving the world from its original sin.[57]

This is how the tree of life from paradise became the wood of the cross. Christ was the 'new Adam'. The paradise from which Adam was banned becomes accessible again through the wood of the cross on which Jesus died. For a medieval believer, the path to Paradise was through the church. The church in which Christians gathered around the cross became synonymous with the garden around the tree of life.[58] That is precisely what



12.
Lambert of Saint-Omer,
Le livre fleurissant en fleurs.
The Hague, KB MS 128 C 4, fol. 396v.
Dream of Nebuchadnezzar.

13.
Lambert of Saint-Omer, *Liber floridus*.
Ghent, UB MS 92, fol. 52r.
Paradise as city with the tree of life at its centre.

Lambert depicts here (ill. 13): the tree of life standing in the centre of the garden surrounded by buildings, a city. This raises the question of whether the city is imaginary or whether it has some sort of other meaning. In all likelihood, the latter is the case. The city strongly suggests the 'heavenly Jerusalem' that Lambert depicted elsewhere in his book (ill. 14).[59] Several elements in this illustration allow us to recognize it as the heavenly Jerusalem described in the book of Revelations in the New Testament. Revelations also tells of 'a great and high wall' that is clearly visible here. The number twelve is mentioned repeatedly and links in with the twelve towers in the illustration, and the 'three gates' mentioned in Revelations may also be seen.[60] The same details of the city wall with gates and the similarities in the construction are found in Lambert's representation of paradise (ill. 13). It is unquestionable that Lambert was depicting paradise here, given the four interwoven wavy strips of colour underneath the wall, representing the rivers of paradise discussed by him.[61]



14.
Lambert of Saint-Omer, *Liber floridus*.
Ghent, UB MS 92, fol. 65r.
Heavenly Jerusalem.

Conclusion

In this chapter, I have discussed the illustrations involving plants and trees from two manuscripts of the *Liber floridus housed* in the Royal Library of the Netherlands in The Hague. I have attempted to clarify the images and the accompanying texts. A green world full of symbolism is brought to life in both texts and illustrations. A plant world that is filled with Christian virtues and values, but that can also symbolize the bad qualities found in man. Lambert's greenery is part of a larger universe in which the reader can stand in awe and wonder at everything in it. He linked plants with old biblical texts and symbolism, as we saw with the eight plants and eight beatitudes. He did not hesitate to combine the sacred with the profane. We find contemporary plant lists next to the eight beatitudes and he linked the history of the fall of Jerusalem with the palm tree, as a symbol of the victorious church. This extraordinary material reveals medieval knowledge that continues to fascinate observers even in these modern times.[62]



NOTES

[1] Ill. 3 in chapter 8: Parchment roll, *Genealogy of the Kings of England*, England, *c.* 1500-1520. 9000 × 320 mm. The Hague, KB MS 78 B 24.
[2] A. Delorez, *The Autograph Manuscript of the Liber Floridus. A Key to the Encyclopedia of Lambert of Saint-Omer*. Turnhout 1998, pp. 185-188. The nine manuscripts are found in the following places: Wolfenbüttel (Herzog August Bibliothek, MS Gudeanus lat. 1, second half of the twelfth century); Leiden (UB MS Voss. lat. fol. 31, fols. 121-213, end of the thirteenth century); Genoa (Biblioteca Durazzo-Giustiniani, MS A IX 9, second half of the fifteenth century); Chantilly (Musée Condé, MS 724 (olim 1569), third quarter of the fifteenth century); The Hague (KB MS 72 A 23, 1460); The Hague (KB MS 128 C 4, 1512); Leiden (UB MS Voss. lat. 31, fols. 1-120, second half of the thirteenth century); Paris (Bibliothèque Nationale MS lat. 9675, 1429); Douai (Bibliothèque Municipale MS 796, second half of the fifteenth century). Lambertus's original work is found in Ghent (Ghent, UB MS 92, *c.* 1121); for information and digital consultation of the manuscript, see www.liberfloridus.be. The text of the autograph is found in A. Derolez, *Lamberti S. Audomari canonici Liber floridus: codex autographus Bibliothecae universitatis gandavensis*. Gandavi 1968. See also A. Derolez, *The Making and Meaning of the Liber Floridus. A Study of the Original Manuscript. Ghent, University Library MS 92*. London etc. 2015, appendix I, pp. 189-193 (copies and related manuscripts); H. Vorholt, *Shaping Knowledge. The Transmission of the Liber Floridus*. London 2017.
[3] K. De Coene, 'Lambertus en de geleerdencultuur. De intellectuele omgeving van het *Liber Floridus*', in: K. de Coene, M. de Reu & P. de Maeyer, *Liber Floridus 1121. De wereld in een boek*. Tielt 2011, pp. 57-73, pp. 59, 60.
[4] See 'De wereld in een boek' in: K. de Coene, M. de Reu & P. de Maeyer, *Liber Floridus 1121. De wereld in een boek*. Tielt 2011, pp. 15-31, p. 18.
[5] A.S. Korteweg & C.A. Chavannes-Mazel, *Treasures of the Royal Library*. [Exhib. cat. The Hague]. The Hague 1980, pp. 111 (cat. p. 207) – 112 (cat. p. 209).
[6] The Hague, KB MS 72 A 23, fol. 37r.
[7] The Hague, KB MS 128 C 4, fol. 69v.
[8] E. Kirschbaum, *Lexikon der Christlichen Ikonographie*, vol. 3. Rome, etc. 1971; Palme: pp. 364-365; M. Lima, *The Book of Trees: Visualizing Branches of Knowledge*. New York 2014, p. 51, 'figurative trees', see Chapter 1 (pp. 49-77).
[9] Matthew 21: 8, Mark 11: 8, Luke 19: 36.
[10] A.J. Bernet Kempers, *Om een struik die palm werd*. Arnhem 1966, p. 71.
[11] P.C. Mayo, 'The Crusaders under the Palm: Allegorical Plants and Cosmic Kingship in the "Liber Floridus"', in: *Dumbarton Oaks Papers* 27 (1973), pp. 29-67, 37; Kirschbaum, op. cit. (n. 8), p. 365: 'Symb. der Kirche ist die P. im Liber Floridus.' (The P. in the Liber floridus is a symbol of the Church.)
[12] The other virtues are: *gaudium* (joy), *spes* (hope), *castitas* (chastity), *mansuetudo* (meekness), *patientia* (patience), *continentia* (restraint), *longanimitas* (forbearance), *fides vera* (true faith), *temperantia* (temperance), *fortitudo* (strength), *justitia* (justice), *prudentia* (prudence), caritas (charity), *pax* (peace), *modestia* (modesty), *bonitas* (goodness), *humilitas* (humility), *abstinentia* (abstinence), *laetitia* (joy), *timor dei* (fear of God); L. Behling, 'Ecclesia als Arbor Bona. Zum Sinngehalt einiger Pflanzendarstellungen des 12. und frühen 13. Jahrhunderts', in: *Zeitschrift für Kunstwissenschaft* 13 (1959), pp. 139-154, p. 144.
[13] The words that are found in-between are: *rancor* (resentment), *ira* (anger, wrath), *luxuria* (ostentation), *instabilitas* (inconstancy), *simulatio* (false pretence), *cupiditas* (greed), *odium* (hate), *invidia* (envy), *homicidium* (murder), *avaritia* (avarice), *discordia* (discord), *ingluvia* (gluttony), *fraus* (deceit), *superbia* (pride), *gula* (gluttony), *tristitia* (melancholy), *vana gloria* (vainglory); Behling, op. cit. (n. 12), p. 144.
[14] Behling, op. cit. (n. 12), p. 144; Mayo, op. cit. (n. 11), p. 37; Derolez 2015, op. cit. (n. 2), pp. 174-175.
[15] De Coene, De Reu & De Maeyer, op. cit. (n. 3), pp. 15-31, 16.
[16] Ill. 3a: The Hague, KB MS 72 A 23, fol. 90r. Ill. 3b: idem, fol. 90v.
[17] Ill. 4: The Hague, KB MS 128 C4, fols. 189r.-189v.
[18] A. Derolez, *Liber Floridus: kunst en wetenschap in een middeleeuwse encyclopedie: tentoonstelling in de Universiteitsbibliotheek Gent ingericht t.g.v. het IFLA Congres, 5 sept.-7 okt. 1977*. Gent 1977, pp. 5-6. H. Bober, 'Comments on the Figural Illustrations', in: A. Derolez. *Liber Floridus Colloquium, Papers Read at the International Meeting Held in the University Library Ghent on 3-5 Sept. 1967*. Ghent 1973, p. 22. An interesting mention is made here of six enamelled copper plates that were made around 1170-1180 – possibly for a relic. The illustrations and texts show a great deal of similarity to the eight beatitudes in *Liber floridus*. They are found in Darmstadt. For information and illustration, see H. Schnitzler & K. Degen, *Die Sammlungen des Baron von Hüpsch. Ein Kölner Kunstkabinett um 1800*. [Exhib. cat. Cologne]. Darmstadt 1964, no. 45, ill. 48; Behling, op. cit. (n. 12), pp. 152-153.
[19] The eight beatitudes are: (Mat. 5: 1-12): 'Blessed are the poor in spirit: for theirs is the kingdom of heaven. Blessed are they that mourn: for they shall be comforted. Blessed are the meek: for they shall inherit the earth. Blessed are they that do hunger and thirst after righteousness: for they shall be filled. Blessed are the merciful: for they shall obtain mercy. Blessed are the pure in heart: for they shall see God. Blessed are the peacemakers: for they shall be called the children of God. Blessed are they that are persecuted for righteousness's sake: for theirs is the kingdom of heaven' (KJV).
[20] *Ecclesiastes* was written *c.* 190 BCE by Yeshua ben Sira and is part of the wisdom literature (didactic books) of the Vulgate. C. Heitzmann & P. Carmassi, *Der Liber Floridus in Wolfenbüttel. Eine Prachtmanuscript über Himmel und Erde*. Darmstadt 2014, p. 288. For more on the number eight, see: E. Kirschbaum, *Lexikon der Christlichen Ikonographie*, vol. 1. Rome, etc. 1968, pp. 40-41: 'Überall, wo Vollkommenheit angestrebt und universaler Anspruch erhoben wird, liegt die Acht nahe.' ('Wherever perfection is sought and universal rights demanded, the eight beatitudes are close by'). The text of *Ecclesiastes* can be found at www.statenvertaling.net/bijbel/jezus_sirach.html.
[21] Behling, op. cit. (n. 12), pp. 152-153.
[22] See note 19.
[23] Ezekiel 17: 22-24.
[24] M. De Cleene & M.C. Lejeune, *Compendium van Rituele Planten in Europa*, 4th edition. Gent 2008, p. 230. See also: M. Beuchert, *Symbolik der Pflanzen*. Frankfurt am Main, etc. 2004, p. 349. In all likelihood, this does not just refer to *Cedrus libani*, but also includes other coniferous trees mentioned in the bible, for example the *Pinus halepensis* (Aleppo pine) or the juniper. K. Dobat, *Pflanzen der Bibel*. Darmstadt 2012, p. 21.
[25] D. Forstner, *Die Welt der Christlichen Symbole*. Innsbruck 1977, p. 177.
[26] Beuchert, op. cit. (n. 24), p. 350.
[27] Hours of the Virgin, (Lectio 3, Eccl. 24, 17-20); https://udayton.edu/imri/mary/l/little-office-of-the-blessed-virgin-mary.php; De Cleene & Lejeune, op. cit. (n. 24), p. 232.
[28] Heitzmann & Carmassi, op. cit. (n. 20), p. 58; The Hague, Royal Library MS 128 C 4, fol. 190r.
[29] The Hague, KB MS 72 A 23, fol. 36v.
[30] The Hague, KB MS 128 C 4, fol. 69r.
[31] Ghent, UB MS 92, fol. 230v.
[32] Kirschbaum, op. cit. (n. 8), p. 100-102; Beuchert, op. cit. (n. 24), p. 185.
[33] Mayo, op. cit. (n. 11), p. 48.
[34] Given here is *septem artes* instead of *septem artes liberales*.
[35] Mayo, op. cit. (n. 11), p. 49. For more information, see D.L. Wagner. *The Seven Liberal Arts in the Middle Ages*. Bloomington 1986.
[36] Mayo, op. cit. (n. 11), p. 49. In addition to the eight plants which relate to the eight beatitudes, the following are also listed: *Laurus* (laurel), *Pinus* (spruce), *Abies* (pine) and *Buxus* (boxwood).
[37] Ill. 8a: The Hague, KB MS 72 A 23, fol. 185r. and ill. 8b: The Hague, KB MS 72 A 23, fol. 185v.
[38] A. Katzenellenbogen, *Allegories of the Virtues and Vices in Mediaeval Art: From Early Christian Times to the Thirteenth Century*. London 1939, pp. 65-68, plate XXXVIII and XXXIX; J. Tollebeek, 'Arbor mala: het antijudaisme van Lambertus van Sint-Omaars', in: *Studie Rosenthaliana* 20:1 (1986), pp. 1-33: 25; O. Goetz, *Der Feigenbaum, in der religiösen Kunst des Abendlandes*. Berlin 1965, p. 154. For a survey of trees related to the virtues and vices, see C. Hourihane, *Virtue & Vice: The Personifications in the Index of Christian Art*. Princeton, New Jersey 2000, p. 323 and p. 437.
[39] Katzenellenbogen, op. cit. (n. 38), p. 65. *Continentia* (rose), *Fides* (pine), *Loganimitas* (oak),

Mansuetudo (boxwood), *Patientia* (cedar), *Castitas* (olive tree), *Gaudium* (cypress), *Sobrietas* (spruce), *Pax* (plane tree), *Bonitas* (cardamom), *Modestia* (balsam).

[40] Ghent, UB MS 92, fol. 231v. and fol. 232r.

[41] Ill. 10a: The Hague, KB MS 128 C 4, fol. 397r. Ill. 10b: idem, fol. 397v.

[42] Behling, op. cit. (n. 12), p. 146. The text was not included in the later versions (The Hague, KB MS 72 A 23 and MS 128 C 4).

[43] Behling, op. cit. (n. 12), p. 148; E. Kirschbaum, *Lexikon der Christlichen Ikonographie*, vol. 2, Rome etc. 1970, pp. 22-24: 'Feigenbaum; Sinnbild der Synagoge, des Hauses Israel, des unfruchtbaren Judentums.'

[44] Tollebeek, op. cit. (n. 38), p. 25. Some of the twelve vices were called by St. Paul 'the work of the flesh' (Galatians V; 19); Katzenellenbogen, op. cit. (n. 38), p. 65.

[45] Tollebeek, op. cit. (n. 38), p. 26.

[46] Mark 11: 12-14, 20-22. Matthew 21: 18-22. The fig tree that overnight withered 'down to its roots' stands for all Creation; see Goetz, op. cit. (n. 38), p. 59.

[47] Matthew 3: 10. Behling, op. cit. (n. 12), p. 148.

[48] The order of the pages is altered in later versions. In BHSL.HS.0092, 'Nebuchadnezzar's Dream' follows the *arbor bona* and the *arbor mala*. In KB MS 72 A 23 and KB MS 128 C 4 the 'dream' comes before the *arbor bona* and the *arbor mala*.

[49] Ill. 11: The Hague, KB MS 72 A 23, fol. 184v. Ill. 12: The Hague, KB 128 C 4, fol. 396v. See also the introduction to: De Coene, De Reu & De Maeyer, op. cit. (n. 3), p. 25, ill. 10..

[50] Mayo, op. cit. (n. 11), p. 57. Latin texts: 'Succidite arborem et prescidite ramos eius, excutite folia eius et dispergite fructum eius. Germen radicum eius alligetur vinculo ferreo in herbis et rore celi tinguatur, donec VII tempora commutentur.' Second text: 'Somnium Nabugodonosor regis Chaldeorum, quod interpretavit Daniel propheta dum esset in transmigratione Babylonis, de statua et arbore in fine quarte etatis mundi.'

[51] Daniel 4: 8-37.

[52] Daniel 2: 1-49.

[53] Mayo, op. cit. (n. 11), p. 58. Filips van Harveng (ca. 1100-1183) should be mentioned here; G. Constable, *The Reformation of the Twelfth Century*. Cambridge 1996, p. 164: 'Philip of Harvengt in his treatise *On the dream of Nebuchadnezzar* proposed two systems, one based on the seven parts of the statue seen by Nebuchadnezzar (head, chest, arms, stomach, thigh, shins, and feet) and the other on its five materials (gold, silver, copper, iron, and clay), both of which showed the progressive deterioration from the earliest age, of the head of gold, to the present age, the feet of clay.'
Left, next to the king: 'Mundus in prima aetate habens caput aureum. et in secunda pectus argenteum. et in tertia ventrem aeneum et in quarta femur ferreum. et in quinta tibias plumbeas; et in sexta pedes luti. Right, next to the king: Aetas prima aurea ab adam usque Ad Noe. Aetas secunda argentea. a Noe usque ad Abraham. Aetas tertia aenea. ab abraham usque ad david. Aetas quarta ferrea usque ad transmigrationem babylonis. Aetas quinta plumbea usque ad Christum. Aetas sexta luti;' A. Boeckler, *Abendländische Miniatures bis zum Ausgang der Romanischen Zeit*. Berlin etc. 1930, pp. 121-122.

[54] Boeckler, op. cit. (n. 53), p. 121.

[55] Ghent, UB MS 92, fol. 52r.

[56] P.G.J.M. Raedts, 'Het aards paradijs: de tuin als beeld van het geluk', in: R.E.V. Stuip & C. Vellekoop (eds.), *Tuinen in de Middeleeuwen*. Hilversum 1992, pp. 35-50, p. 42; B. Baert, '"Totten paradise soe sult ghi gaen". De verbeelding over de herkomst van het kruishout', in: B. Baert & V. Fraeters, *Aan de vruchten kent men de boom. De boom in text en beeld in de middeleeuwse Nederlanden*. Leuven 2001, pp. 19-48, p. 21. The origins of the legend of the wood of the cross are complex. The legend reaches its peak in the high Middle Ages of the twelfth and thirteenth centuries and continued to be handed down until about 1500. See also G. Schiller, *Ikonographie der christlichen Kunst*, vol. 2, Gütersloh 1968, pp. 22-24: Die Kreuzlegenden.

[57] Raedts, op. cit. (n. 56), pp. 42-44.

[58] Raedts, op. cit. (n. 56), p. 44; H.S. Benjamins, 'Paradisiacal Life: The Story of Paradise in the Early Church', in: *Paradise Interpreted: Representations of Biblical Paradise in Judaism and Christianity*. Leiden etc. 1999, pp. 153-167, pp. 153-154.

[59] Ghent, UB MS 92, fol. 65r.; B. Narkiss & B. Kühnel, *The Real and Ideal Jerusalem in Jewish, Christian and Islamic Art*. Jerusalem 1998, XXVII;. H.M. von Erffa, *Ikonologie der Genesis*, vol. 1. Munich 1989, pp. 98-104; 1.1.5.1 Himmlisches Jerusalem.

[60] Revelations 21: 12: 'It had a great, high wall with twelve gates, and with twelve angels at the gates. On the gates were written the names of the twelve tribes of Israel. There were three gates on the east, three on the north, three on the south and three on the west. The wall of the city had twelve foundations, and on them were the names of the twelve apostles of the Lamb.' R.D. Russell, '"A Similitude of Paradise": The City as Image of the City', in: C. Davidson, *The Iconography of Heaven*. Kalamazoo 1994, pp. 146-161, pp. 147-148. Artists created an image of the heavenly City by placing the most important visual elements next to one another.

[61] Lambertus writes about these streams of paradise in the pages preceding the illustration. His writing is a mixture of theology and contemporary geography; he starts with the streams of paradise and continues with the rivers of the world. That also holds for his writing on paradise. After he has explained that paradise is found in the east, he provides a geographical survey of islands and of some of the products that are found in those areas. According to him there is an abundance of gold and precious gems in Taprobana near India, and Sardinia boasts hot springs.

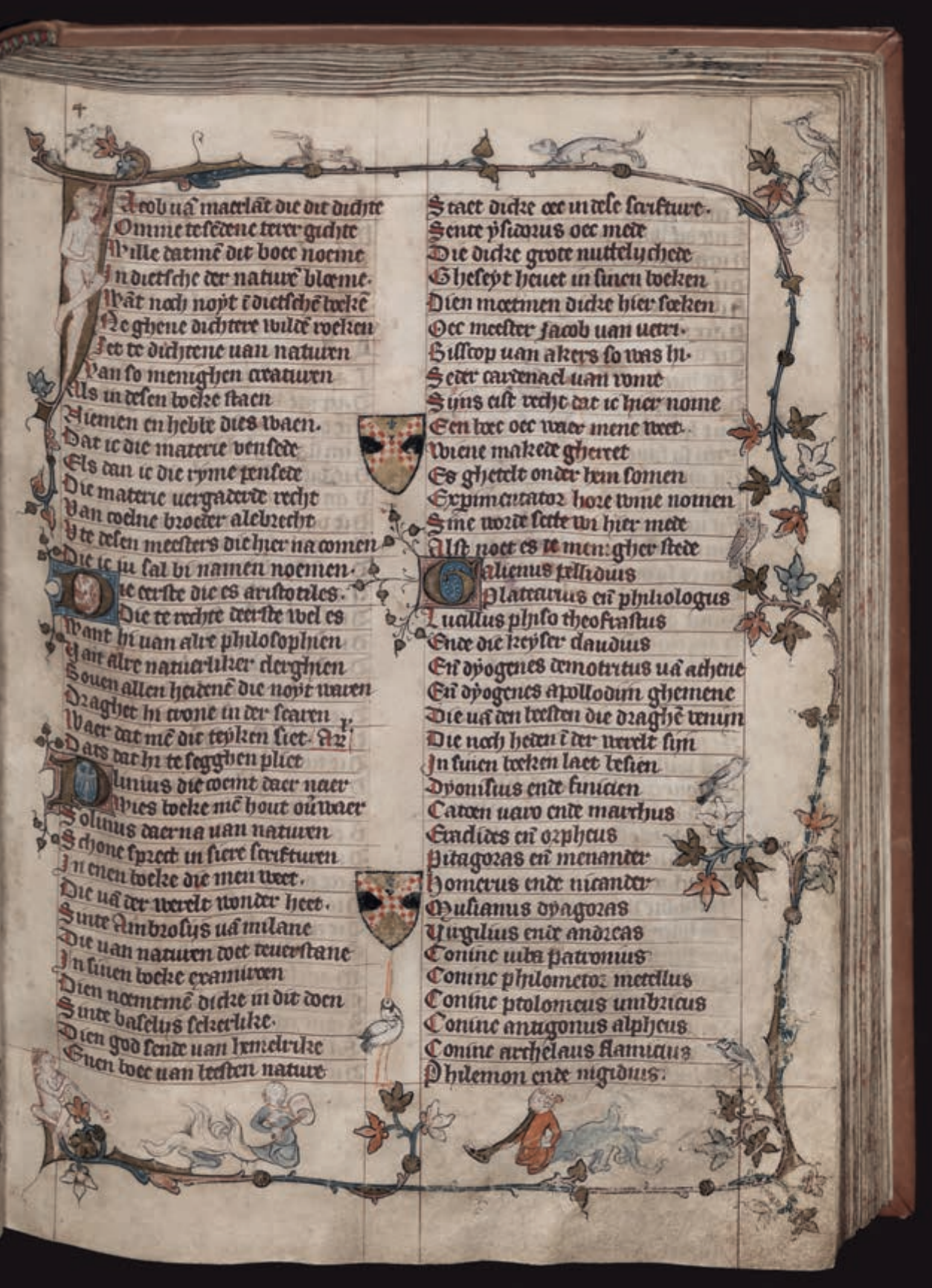
[62] With many thanks to Ilse Slot for help with the Latin translations.

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10

THE HERBAL BOOK IN JACOB VAN MAERLANT'S *DER NATUREN BLOEME*



Jacob uã matrlãt die dit dichte
Omme te lẽdene tertr gichte
Wille dat mẽ dit boec noeme
In dietsche der naturẽ bloeme.
Wãt nach noyt ẽ dietschẽ boekẽ
Ne ghene dichtre wilde roeken
Let te dichtene uan naturen
Van so menighen creaturen
Als in desen boeke staen
Niemen en hebbe dies waen.
Dat ic die materie vensede
Els dan ic die ryme pensede
Die materie uergaderde recht
Van coelne broeder alebrecht
Ute desen meesters die hier na comen
Die ic in sal bi namen noemen.
Die erste die es aristoteles.
Die te rechte deerde wel es
Want hi uan alre philosophen
Van alre natuerliker dinghen
Souen allen heidenẽ die noyt waren
Draghet hi wone in der scaren
Waer dat mẽ dit teyken siet.
Dats dat hi te seggben plicht
Plinius die coemt daer naer
Wies boeke mẽ hout oũ waer
Solinus daerna uan naturen
Schone spreect in siere scripturen
In enen boeke die men weet.
Die uã der werelt wonder heet.
Sinte Ambrosius uã milane
Die uan naturen wel teuerstane
In sinen boeke examinren
Dien noemtemẽ dicke in dit doen
Sinte basilius seerlike.
Dien god sende uan hemelrike
Enen boec uan desen nature
Staet dicke oec in dese scripture.
Sente ysidorus oec mede
Die dicke groote nutticheyde
Gheleyt heuet in sinen boeken
Dien moetmen dicke hier soeken
Oec meester Jacob uan uetri.
Bisschop uan akers so was hi.
Seder cardenael uan rome
Sijns eelts recht dat ic hier nome
Een boec oec waer mene weet.
Viene maketh gheret
Es ghetelt onder hem somen
Expimentator hore tome nomen
Sine woerde sette wi hier mede
Alst noet es te menighen stede
Galienus pellidus
Platearus eñ philologus
Tuallus physo theofrastus
Ende die keyser claudius
Eñ dyogenes democritus uã athene
Eñ dyogenes apollodim ghemene
Die uã den beesten die draghẽ venum
Die noch heden i der werelt sijn
In sinen boeken laet beschien
Dyonisius ende sinicien
Catoen uaro ende marchus
Eudides eñ orpheus
Pitagoras eñ menander
Homerus ende nicander
Vuliamus dyagoras
Virgilius ende andreas
Comine uita patronus
Comine philometor metellus
Comine ptolomeus umbricus
Comine antagonus alpheus
Comine archelaus flamicus
Philemon ende nigidius.

Jos A.A.M. Biemans

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600*. Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_CH10

Abstract
In 1270 the Flemish poet Jacob van Maerlant completed his re-creation into Middle Dutch of *De natura rerum* by Thomas of Cantimpré. His translation and adaptation, entitled *Der nature bloeme* or 'The Best of Nature', counts thirteen large chapters or 'Books', of which Book Ten is devoted to herbals. Biemans discusses some features of the manuscript tradition of *Der nature bloeme*. Excerpts from Maerlant's work can be found in many other contexts. His 'Herbal Book' is the only section of the text to have been copied twice as an independent and complete entity, albeit together with other medical and pharmaceutical content.

Keywords: Thomas of Cantimpré, *De natura rerum*, Jacob van Maerlant, *Der naturen Bloeme*, manuscript tradition, Book of Herbals

Jacob van Maerlant's Der naturen bloeme, 'The Best of Nature', is frequently called an 'encyclopaedia of nature'.[1] It is an encyclopaedia in an older sense and not comparable to a reference work such as the *Encyclopaedia Britannica* or present-day *Wikipedia* that provide instant, compact information on people, topics and concepts. The thirteenth-century Flemish writer Jacob van Maerlant offered his information in a more narrative way, and in rhyming verse, in keeping with the conventions of the time.[2] With its rhythm and rhyme, poetry was more pleasant to listen to than the less rhythmic flow of prose. We must remember that Maerlant and his contemporaries usually wrote for listeners and not primarily for readers as is usually the case today. The idea of reading and listening was not just true for romantic literature, but also for other genres, including the informative and didactic literature of the Middle Ages.

One thing that Jacob had in common with modern encyclopaedias and websites is that he provided sources. They are not placed at the end of the lemmas or articles that make up *Der naturen bloeme,* but are included in the running text. Whether or not it was an article on human types, animals, trees, plants or a particular stone, we regularly find the names of the authors who were the source of his information. We read, 'In Plinius's book it says …', '… thus wrote Ysidorus', 'Aristoteles says …', 'as Platerarius relates …', 'Jacques de Vetri says …', 'Brother Aelbrecht says that …' or 'Solinus says in his poem …'. His references are (in chronological order) to various works about cosmology, nature and the animal world by Aristotle (fourth century BCE), the extensive and 'encyclopaedic' *Naturalis historia* by Pliny the Elder (d. 79), *De mirabilibus mundi* ('On the wonders of the world') by Gaius Julius Solinus (third century), the *Etymologiae* by Isidore of Seville (560-636), the *Liber de simplicibus* by Mattheus Platearius (first half of the twelfth century) and the *Sermones vulgares* by Jacques de Vitry (*c.* 1160/70-1240). De Vitry was a theologian who also wrote 'Sermons for the People' a collection we find interesting today not so much for their moral exhortations, but for the gems of knowledge embedded in them and what they tell us about a multitude of social events and happenings in the Middle Ages. Brother Aelbrecht refers of course to Albertus Magnus (*c.* 1200-1280), a German scholar at the University of Cologne. Although he was a theologian and philosopher, Albertus was also interested in science and acquainted with the works of Aristotle on the several subjects mentioned above.

In all likelihood, Maerlant had not read most of these authoritative sources himself but, rather, 'quoted' them second hand. Instead, he copied the references to the scholars named above from his main source, *De natura rerum*, 'On the Nature of Things', by Thomas of Cantimpré (1201-*c.* 1272). This Dominican scholar was more or less a contemporary of Jacob van Maerlant. Thomas was born in what is now central Belgium and studied in Cologne and Paris, after which he worked in the southern Low Countries until his death in Louvain. His book 'On the Nature of Things' was originally intended as a collection of data on the Creation, and animals in particular, but also on human types and on the springs that provided the earth with water. His descriptions gave priests plenty of material to use in their sermons, and also for moralistic applications, such as for the purpose of chastising their audiences. But Thomas extended the scope of his book and it turned into an encyclopaedic work about the world in its entirety and on everything that is found in it, including plants, stones, metals, planets, and so on. In his eyes, this was indispensable information made available to every priest or pastoral worker. Thomas had a practical goal in mind, but he also had scholarly aspirations. The language he used, Latin, attests to that, as it was also the language of the church and the clergy. The intelligent, structured manner in which the material is presented demonstrates that this is a standard work of scholarship.[3] It is also safe to assume that the title is a reference to Pliny's 'encyclopaedia'.

In comparison, Jacob van Maerlant ambitions were more modest. His audience was not the scholarly world, but he

1. ◄
Jacob van Maerlant, *Der naturen bloeme*, diocese of Utrecht, ca. 1360.
Dim. 307 x 234 mm. Leiden, UB MS BPL 14 A, fol. 26, beginning of the poem.

2.
Jacob van Maerlant, *Der naturen bloeme*, Flanders, *c.* 1350.
Dim. 278 x 208 mm. The Hague, KB MS KA 16, fols. 41v-42r.

Two sciapodes (men with one foot) in the first book of *Der naturen bloeme*. Sciapode was originally Greek: 'scia' meaning shadow and 'pous' (genitive: podos) meaning foot.

made scholarly knowledge from Latin prose texts accessible to his contemporaries in the Middle Dutch-speaking world by retelling it in the form of rhymed translations. That is what he did with Cantimpré's *De natura rerum* in his *Der naturen bloeme* (ill. 1, p. 213). Its content is not only less intellectual and more narrative, its very title is deliberately different: *Der naturen bloeme* or 'The best or the most beautiful from the Book of Nature'. Maerlant's popularizing of Latin knowledge was not limited to *Der naturen bloeme*. As soon as he had finished that work, he translated and adapted the *Historia scolastica* by Petrus Comestor, that he retitled the *Rijmbijbel,* biblical stories in rhyme. Later he also translated into vernacular Dutch large sections of the *Speculum historiale* by Vincent of Beauvais, an extensive history of the world from the Creation to about 1250, under the title *Spiegel historiael.*

Maerlant and the manuscript tradition of his work

Let us first take a look at a number of facts about the writer. Jacob van Maerlant was born presumably between 1225 and 1235 in Flanders, in the area called the Franc of Bruges. His earliest work was probably intended for lovers of literature and history in which he wrote about Alexander the Great, King Arthur and the Knights of the Round Table, as well as the Trojan War. After that phase, his attention turned towards works that were perhaps intended for a broader public. Or was he attempting to appeal to a different public? Whatever the case, the works he produced in the last twenty years of his life provided his contemporaries with information in Dutch of a more general nature. He was commissioned to write *Der naturen bloeme* by Nicolaas van Kats (*c.* 1250-1283), a nobleman from the entourage of the court of Holland.[4] The book was finished



Dat Canter rolie es ghenaemt
Alo dat soe de manne weet
En outste in en mat buijn dat
E alabastre wi lelen dat

Cimmijn

Cyminum dat es comijn
Plaeters sal de meste sijn
Arbeit deughe es eid heet
Si het oec den wint vleet
Si die vele helpt van wee
En gheue hem wijn der mede gelade
Et est meer te pulene nach
Ant het mer soe der ureuwe sach
Oliment dim drinken gheue
Of eten te pulvere ghewreuen
Et allenen so sal verlien pine
Me natuerlike pine

Sanctorie

Centaurea es deughe en heet
Dat bitterste cruut dat men weet
Al herent wel na die meesters alle
Tnamen der herden galle
En salle sieden met wine
Si suiuert der we ogben die pine
An siere groet herzebede
Es medicine niede
Ogben stoppinghe alme pine
Te leuere en multer verfwoet
Ogben hertenl de wee doet
Ute en leuere es det goet
Dan desen wertel dien te telle
Pie venkele pedercelle
Si dat salmen sieden dat na
Te sap van centaurea
Si dat duen dor en doet
Si ghauent den ghenen die dat doet leet
Te es ogben lanchenel goet
Si hem duen die suchte wee doet
In wine gheloden en men ontfaet
Den drane almen te bedde gaet
Al wateren dat doet suet wte come
Ar het es quaet dichten ghenoeme
Ant het maket te quade bloet
En beter eslet in den aerste
Hemd alle die wine es coud
Anise in del somers ghewoud

Hypericon

Ypranul als placaet ogher
Es .i. cruut dat crakle an ogher
In woerden wasten wilme weet
Oer est ogben ghenemde beet

Hestampt en gelet upde wonde
Ijn salf ghedronken met monde
Et wat ghemaect dat es goet
P datmen made doet
Ap van menten .v. lepelkin
At dese dinghe waret sijn
Are est laden staten ane
Ant alle waren ghebonet
Et enegben ghenenden strale
Aghen dat die aghen wille
At si dat cruut soghen den
Si woerden hare wonden deran
Si dan haten 6 inde dat cruut
En sieuen straet en ventin wt

Fenicules als placaet ogher
Et .i. cruut dat waremt en dogher
Del doet wel arme mannen
Si et wan sadelen saluen
Arel blade en saet
Sijn in filikc toeneclaet
En sal nemen den wertel sijn
Ter waden in den lentijn
Te et goet gheloden in wine
En die wint heuet en pine
Si nuchten en leueren oec est goet
En dien dikkentere wee doet
Ogben den steen est goet te wine
En diene heuet van onder in stonde
Et ventuel gheloden als pulwent
Si alle gheeten es heilsent
At goet et tallo sulke siechede
Wint vdriuen mede
Si helpt he die dat vduen heuet quaet
Ar wo ghepulueret wel sijn saet
Et al dat selne det vander doet
Te die siene niet neuet goet
Tampe den wertel en nemes dan
At sap dat hare wet gheduen an
Si hanghet in i. epeijn wat
.xv. daghe buten dat
Ar na sal hijt en die ogben dropen
Uemach wel des hauen hopen

Bilsemc

Squam et sere cruit
E en es .i. cruut van groe gheslont
In ofsteden oude alkut vant
Alsec vele hier uit lant
Woe est met oec blelé blomt
C wanamene belne in dieselé nom

Venckel

3.
Jacob van Maerlant, *Der naturen bloeme*, Flanders, first quarter fourteenth century. Dim. 261 x 185 mm. London, BL MS Add. 11.390, fol. 82v.

Text and illustration of 'Cyminum' (cumijn, cumin), 'Centaurea' (Sanctorie, cornflower), 'Dyptanus' (peperworte[l], wormwood), 'Feniculus' (venekel, fennel) and 'Jusquami' (belseme, henbane). See ills. 10 and 11 on p. 44, and ill. 25 on p. 55 for additional images of henbane.

in 1270 and was followed immediately, as we mentioned, by the *Rijmbijbel*. Having gained considerable renown, Maerlant was asked by the Franciscans in Utrecht to write a biography of St. Francis of Assisi. From 1283 to 1288 he worked on his *Spiegel historiael*. He died around 1300. Even though it is somewhat perilous to label medieval literature from a modern point of view, we could characterize Maerlant's writings from the second half of his life as didactic literature, albeit with a hagiographic work in its midst. Even the life of Saint Francis, *Sinte Franciscus leven,* includes plenty of didactic lessons.

Research into both qualitative and quantitative aspects of the manuscript tradition of Maerlant's *Rijmbijbel* is still on-going and information on the manuscripts of *Der naturen bloeme* has not been completed. Nevertheless, just considering the manuscripts that are known and the dates they were written, we can establish a number of facts.[5] Jacob van Maerlant was a thirteenth-century author who enjoyed considerable recognition, that had begun during his lifetime and continued after his death. That would lead us to expect that numerous manuscripts would have been commissioned, produced and read during his lifetime. But that is, surprisingly, not the case. It would seem that the popularity of his work was based on a very limited number of manuscripts, but very few of the thirteenth-century manuscripts have been preserved. A small number of manuscripts can be dated to around 1300 and by far the most manuscripts containing Maerlant's various works must have been produced in the first half of the fourteenth century. Later manuscripts continued to be produced until the year 1400 and beyond, but not in any great number. It would seem that the market had been saturated by then. In short, this very productive thirteenth-century author was still an important literary-historical figure well into the fourteenth century.[6]

Our understanding of the manuscript tradition is complicated by the fact that, in addition to complete, or almost complete manuscripts, there are also fragments of manuscripts that have survived. It was common practice to reuse the parchment with which manuscripts were made when the topic was no longer interesting or had gone out of fashion. Bookbinders in particular reused the parchment. They cut up manuscripts into pieces of different shapes and sizes to use the material as reinforcement for new bindings. Centuries later, when the bindings were repaired or replaced, the medieval fragments reappeared. Careful research enables us to reconstruct a manuscript by putting together the fragments that had originally been part of it. These reconstructed manuscripts are also counted in quantitative research. If we gather all of the information available on the number of manuscripts and fragments of Maerlant's most important works that have been preserved and put them in a table (see below), one thing stands out.

It is immediately clear that far more copies of Maerlant's didactic works have survived, despite or perhaps because of their many verses. We must not conclude that these texts were copied more frequently than his earlier epic works, nor that they enjoyed greater popularity. Perhaps books of factual knowledge were more carefully preserved than works of fiction. No doubt manuscripts with medieval miniatures were preserved far more carefully than books lacking illustrations. That would have played a role in the preservation of the manuscripts of *Der naturen bloeme* and the *Rijmbijbel*, of which we have seven and nine illustrated copies respectively.[7] That does not apply to the *Spiegel historiael*, however, for of the forty-eight manuscripts that are known to us, only one is illustrated with miniatures.[8]

Manuscript Tradition of Maerlant's Works

	Number of verses	Complete or almost complete manuscripts	Fragmentary manuscripts
Alexanders geesten	14.276	1	4
Graal- en Merlijn roman	10.092	1	1
Roman van Torec	3.844	1	-
Historie van Troyen	40.880	1	10
Heimelijkheid der heimelijkheden	2.158	3	1
Der naturen bloeme	16.670	11	?
Rijmbijbel	34.892	15	?
Sinte Franciscus leven	10.540	1	-
Spiegel historiael	184.000	3	45

4.
Jacob van Maerlant, *Der naturen bloeme*,
The Hague, KB MS KA 16, fol. 54r.
However much this elephant differs from the real animal, as it is missing its characteristic ears, it is still recognisable as an 'Elephas'.

5. ▷
Jacob van Maerlant, *Der naturen bloeme*,
Leiden, UB MS BPL 14 A, fol. 128r. Space for illustrations was not part of the lay-out of this manuscript. They have been added in the margins.

Der naturen bloeme and the book on herbs

Maerlant's *Der naturen bloeme* comprises thirteen chapters, or 'books' as they were called in the Middle Ages. They are of very unequal length because some categories, man for example, has fewer types than others, such as birds. After a brief prologue, Jacob takes up the various human types and also treats the four 'aetates' or life phases. He discusses the antipodes, human counterparts on the other side of the earth. Next, he considers four-footed or quadruped animals, that turns into a long book, then birds, again a long book, and the wonders of the sea, including fish and such creatures as sirens and mermaids. Subsequent books deal with reptiles, invertebrates such as worms, ordinary trees, and then tropical trees, in particular those that yield spices. Finally, he turns to herbs, water springs, costly stones and their powers and metals.



At the beginning of the book on animals, Maerlant explains the organization of the lemmas in the following manner (Bk. II, vs. 223-230):

In Latijn sal ic haer namen
Ordinieren alle te samen,
Omme datter menich dier in steyt,
Daer ic die name niet of en weyt.
Teerst in A, daerna in B,
Na dordine van den A. b. c.
Sullen haer namen sijn geset
Omme dat mense vinden mach te bet.

translation:
I shall name them in Latin
And organize them all together
Because there is many an animal
For which I do not know the name.
First in A, then in B,
Following the A b c
Their name will be given
So that people will find them more easily.

What Maerlant means by 'name' in the fourth line of the quotation is the name in the vernacular, 'Dutch', or Flemish as the case may be. If he knows the name, he provides it: '*Ardrea* in Latin is a heron in Dutch'; or among the herbs: '*Ciminum* is cumin' or '*Sponsa solis* is marigold in Dutch'. We can infer from the last line of the quotation that Maerlant saw his *Der naturen bloeme* as a reference book to which people could turn to look things up.

In the framework of this edition of the Green Middle Ages we are primarily interested in Book X on herbs and, in particular, on the pharmacological use of herbs. We did not consider the books on trees. At first glance, the book on herbs is not the most extraordinary section of *Der naturen bloeme*. It doesn't offer any thrilling tales about peculiar human types such as the skiapods for example. Skiapods have only one leg, with which they can run very fast, and their foot is so large it can be used for shade when they lie down on their backs (ill. 2, p. 215). Book X does not contain any stories about extraordinary animals, fish or sea monsters. Still, the herb book provides fascinating reading and gives us an insight into how people in the Middle Ages used plants, both in cooking and for medicine. Just as with every book in *Der naturen bloeme,* Maerlant starts with a short general introduction to the topic. He relates that herbs have truly wondrous characteristics and

Al ôme eñ ôme tehanghẽ buten
Hi mach sond' sorghe saen
Den basiliscus doet uerslaen
En ñ heuet die vochte tet teschuen
Et cost hem te haut sijn leuen
Met ruten sape duacht dijn haer
Sone comẽ nemet nette daer.

Stafisagria dat cruut staet
Droghe eñ heet in dẽ derdẽ graet
Men segher dat et fleume ũdruet
Oec maltge eñ met wiuer ghecruet
En ñ maect daer of dat houet daer
Met ailine ghedronkẽ dats waer
Maect si der tantsuere uerde
Dits onder uondẽ te menigh' steet
Expulũt eñ in een deel ghenomẽ
Oec si te hant te hare comen
Alle luse dene eñ groet
En ñ bluen te hande doet

Sponsa solis dats die goud bloeme.
Nat eñ cout es dat te noeme
Gheten eñ tuel ghewreuẽ
Salmese tegheu uenim grieuẽ
Dat doemt uã uenijnden teten
En ñ dan salmẽ met ũgheten
Oec en salse leggheu op die wonde
Haer sap es goet tegheu öghelondt
Der multen eñ der leuen mede
Als uã buten doemt die siechede

Saxifagia es droghe eñ heet
Cruut dat te recht al d' heet
Wanter den steen ontbiet
Die i die blase eñ in die lẽden steet
Ist datmẽ die wortel sijn
Drinct ghetempert in den wijn
Expuluert die wortel sond' waen
En ñ dan mit pieren eij ghedaen

En ñ vut gheslopen metter spoet
Es tegheu dlanc cuel goet

Saluia es heet eñ droghe
Haer blade sijn te ꝑsene hoghe
Want wijn ghesoden daer mede
Es goet tegheu tuchtichede
En ñ tegheu epilencie
Dats ene suare maladie

Tola dat cruut dat staet
Cout i den eerstẽ naturẽ graet
·y· iaer machmẽ houden dat
Dat segher dlatijn hier ter stat
Maer beste es si nieuwe eñ groene
Men maect met dustanẽ coene
Syroep datmẽ heet uiolaet
Violetten mẽ sieden testaet
In watre eñ dunnet deer·i·deel
Daer toe suiker dus ist ghereet
Waer uã uioletten groene
Soo maert dan uã letten coene
Ets goet alsmẽ heeft den rede
Den lechame tontbindẽ mede
Met maect olie uiolaet
Dus der mede dat uerstaet
Men siede in olie die bloemẽ
En ñ volie datmẽ vut siet coemẽ
Die dunnemẽ deer·i·deel
Dats diemẽ uiolare heet
Men sal dien sijn houet suert
Ist dat hem uã hitten deert
Roerheft eñ slaep saluẽ d' mede
Ets hem grote tehoudenichede

Nuzibar dat cruut dat staet
Heet in den derden graet
En ñ in den eerstẽ graet ist nat
Platearius segher dat
Cruut es coemt uã endi hure

Herbs in Maerlant's *Der naturen bloeme*

	Der naturen bloeme, Book X (De natura rerum, Liber XI)	Middle Dutch	Application according to Der naturen bloeme	Modern name
1	Aloe	aloe	To treat broken bones, snake bites, colds, heartburn, depression, epilepsy, stomach complaints, for the skin, etc.	aloe
2	Absinthium	alsene	For liver, spleen and eyes; to treat aphasia, stroke; ringworms, earwigs, bookworms	wormwood
3	Anetum	anijs	To prevent vomiting, headache, gas, kidney and bladder stones; for problems with urination; good for the stomach	anise
4	Apium		To treat stomach and intestinal cramps; good for the liver	celery, celeriac
5	Crocus	saffraen	To prevent fainting spells; to treat red eyes	saffron
6	Cucurbita	cauworde	To treat 'dysentery' (a serious, contagious disease with fever)	cucumber, pumpkin
7	Coriander (Coriandrum)		To treat a 'cold stomach'; in food, to prevent gas	coriander
8	Canfora (Camphora)		Smells good; the aroma can suppress or eliminate male libido	camphor
9	Ciminum (Cyminum)	comijn	Good for breastfeeding	cumin
10	Cruentamea (Centaurea)	galle	To treat constipation, and to prevent intestinal cramps; good for the spleen and liver	centaurium, centaury
11	Dyptanus (Dyptannus)		To treat poisonous bites and injuries by poisoned arrows	gas plant, dittany, burning bush
12	Feniculus (Feniculum)		Stimulates urination; good for the spleen, liver, digestion; to prevent gas and to treat kidney and bladder stones	fennel
13	Jusquiami (Jusquiami)	beelde	To treat insomnia; to make poisons; to temper the libido	henbane, stinking nightshade
14	Mandragora	der aerde applen	To treat 'dysentery' with a high fever, insomnia and headaches	mandrake
15	Menta	hofmente	To treat mouth, gum and stomach problems	mint
16	Marrubeum (Marrubium)		To treat chest colds and to prevent hemarrhoids	white horehound
17	Nardus (Indica of Syriaca)	nardus	To prevent strokes, tightness in the chest and fainting spells; intestinal catarrh; catarrh of the respiratory tract; intestinal problems	spikenard
18	Propinum of Crassula (Orpinum vel Crassula)	radele, wriesewonde	To treat broken bones	comfrey, symphytum
19	Petrocilinum (Petrosilinum)		For good urine; to prevent tuberculosis; in food, to aid digestion; to prevent gas	parsley
20	Papaver	mecopijn	Soporific; good for the liver; to treat abcesses; and a dry cough	poppy
21	Pionia (Peonia)	pionie	To treat or prevent gout	peony
22	Primula (Primula veris vel clavis celi)		For all emergencies, including epilepsy and strokes	primrose
23	Pesullium (Psilium)		To treat serious illness, and a dry cough	psyllium
24	Ruta		Good for the brain; to treat epilepsy, menstruation problems; to expel a stillborn baby or afterbirth; to treat battle injuries, swollen limbs, blisters and sores, watering, red eyes, poisonings, rabies and head lice	rue
25	Stafisagra (Staphisagria)		To prevent colds, to treat toothaches and all lice	stavesacre
26	Sponsa solis	goudbloeme	To treat poisonous bites; good for the spleen and liver	marigold
27	Saxifraga		To prevent bladder and kidney stones and to treat intestinal problems	saxifrage
28	Saliva (Salvia)		To prevent gout and epilepsy	sage
29	Viola		To treat fever and headaches; has a laxative effect	viola
30	Zinziber	gingebare	To treat chest cold and a cold stomach	ginger
31	Zeduare (Zodearium)		To prevent intestinal problems, gas, to treat stitches in or near the heart; in food, it stimulates the appetite	zedoary
32	Zucara	zuker	To treat constipation, heat and thirst, headaches	sugar cane, and hence cane sugar

that they grow without seeds, one next to the other. He also explains that they have different qualities as some are hot and some are cold, some dry and some wet (Bk. X, vs. 1-7):

Hoert voert van cruden al ghemene,
Van wat wondre ende niet es clene,
Hoe si wassen sonder saet,
Ende hoe teen bi den anderen staet,
Ende teen es heet ende dander cout,
Ende ander van droegher ghewout,
Ende ander van natter naturen.

translation:
Hear, as I tell about herbs in general,
Of their wonders that are not minor,
How they grow without seeds,
And how they stand one next to the other,
And one is hot and the other cold,
Another is dry in its power,
And another wet in nature.

In his verses on herbs Maerlant will often give the 'temperament' of a plant and will say that it is 'dry and hot' or 'cold and wet'. Sometimes he will give the degree of these qualities by saying that an herb is 'hot in the third degree' or 'cold in the first degree'. This is a reference to the qualities of plants, both for food and medicinal purposes, according to Claudius Galen (*c.* 130 - between 201 and 216). Galen was a Greek physician from Pergamon who worked most of his life in Rome. He is known primarily for his elaboration of Hippocrates's theory of the four humours of the body and their related temperaments. To his contemporaries, Maerlant also explains the four elements, humours and temperaments by giving examples. For further information on this topic, see the chapter by Johanna Maria van Winter in this book.

Book X of *Der naturen bloeme* names thirty-two plants. That is one more than are found in Liber XII of *De natura rerum* by Thomas of Cantimpré, entitled 'De herbis aromaticis'. Maerlant begins with aloe, because 'that is an herb'. In this he deviates from his source, for Thomas places the aloe in Liber XI, on 'arbores aromaticae', his section on fragrant trees. Maerlant translated that as 'trees that bear spices', that is to say produce spices and fragrant and/or medicinal herbs. Thomas includes an article on 'De aloe herba' (on the aloe herb) as well as one on 'De aloe arbore' (on the aloe tree).[9] Maerlant's aloe, of course, is a translation of 'De aloe herba'. Aside from this, in his description of herbs, Maerlant followed his source closely. The herbs are also given in the same order as in Thomas's work, as can be seen from the table on p. 220, and the translation is for the most part faithful to the source as well. Column 1 provides the Latin name that Maerlant used followed, if necessary, in parentheses by the Latin name used by Thomas. The Latin names used by Maerlant are taken from the standard edition of *Der naturen bloeme* by Eelco Verwijs and those used by Thomas from the edition of *De natura rerum* by Helmut Boese.[10] Column 2 contains the Middle Dutch name if Maerlant has provided one and these are also taken from the edition by Verwijs. Column 3 gives the illnesses or medical problems that the herb can be used to alleviate or the culinary dishes in which it can be used. Column 4 lists the modern English translation for the plant. It is curious that alphabetization occurs by using the first letter of a word and does not always continue with the second letter.

Plant use in the herb book
The articles vary in length. The shortest lemma is only six lines or verses for 'Saliva', i.e. *Salvia* or sage and the longest is sixty-four verses for *Ruta* or rue. The length depends not just on the amount of medical information the poet wants to provide, but also on his background stories based on Cantimpré's writings. Of rue Maerlant says 'that it has a powerful effect and by its nature imparts strength, and also that both its seeds and leaves can be used for medicinal purposes' (Bk. X, vs. 537-540):

Ruta es van groter macht,
Bi naturen ghevet cracht.
Beide dat saet entie blade
Behoren ter medicnen rade.

translation:
Rue has great power
By its nature it gives strength
Both its seed and its leaves
Are recommended as a medicine.

In addition to its many uses, Maerlant recounts that snakes are very averse to the smell of rue. (See the list of uses for item 24 in the table on p. 220). What is more, if you cover yourself with rue, it will even protect you from the extremely dangerous basilisk – an animal that is a cross between a reptile and a dragon – should you happen to encounter one. The basilisk is described in Book VI of *Der naturen bloeme*. It was believed that the mythical basilisk could kill with a look. Maerlant reports, however, that if the monster gets even the slightest whiff of rue, it will die immediately (Bk. X, vs. 591-598):

Ruten roeke scuwet elc serpent,
Alsmen over waer dat kent:
Wie so hem met groenre ruten
Al omme ende omme behanghet buten,
Hi mach sonder sorghe gaen
Ten basilicus ende dat verslaen.
Ende hevet die roeke iet beseven,
Het cost hem te hant sijn leven.

translation:
Every serpent fears the smell of rue
As is known to be true
Whoever is covered with green rue

Fully covered and then goes out
Has no worry to approach
The basilisk and slay it
Has it noted the smell
It will cost him his life at once.

And finally, for those of us who are not looking for heroic deeds, Maerlant offers practical advice for the use of rue: '[I]f you wash your hair with an extract of it, you will never be bothered by nits or nymphs' (Bk. X, vs. 599-600):

Met ruten sape dwach dijn haer,
Sone comen nemmer nete daer.

translation:
With rue soap wash your hair,
Nits will never come there.

Another enjoyable story is found in the article on alsem, a bitter and very strong herb (*Absinthium*, no. 2 in the table). In addition to a number of understandable uses, we are told that the plant can be an effective repellent for earthworms (*lumbricos*), earwigs and 'bookworms' (Bk. X, vss. 96-97, 104-105 and 107-108, respectively). In the lines on earthworms Maerlant refers to his text (*scrifture*), by which he means his source, *De natura rerum*, where we do indeed find that rue is good against worms, ('contra lumbricos valet').[11] But it would seem that the poet had his doubts as he adds 'for him who believes it' ('dies ghelovet'). As for earwigs, he advises pouring the juice of the plant in your ear, as this will surely kill them. To eliminate vermin from books, you should rub the page with a leaf of wormwood to drive out bookworms and mites.

We should also take note of the unusual remark about camphor that, in the form of a fine white powder and inserted into the nostrils, will castrate men with its odour (no. 8). This again is a literal translation from Maerlant's source: '*Camphora per nares castrat odore mares*' (Bk. X, vs. 198-200).[12]

Maerlant is not quite sure what the Middle Dutch translation is for *Jusquiami* (no. 13) and says 'I believe it is called "beelde" in Dutch' (Bk. X, vs. 294). He was right; the plant is known today in English as henbane or stinking nightshade, *Hyoscyamus*. Whether or not it was the type that grows in the Mediterranean area, *Hyoscyamus albus*, or *Hyoscyamus niger* that is found in the Low Countries is irrelevant: both are quite poisonous. Since time immemorial it was considered to be medicinal, in particular as a painkiller and sedative. Maerlant relates that it is effective as a soporific drug if you crush the leaves or seeds of the plant and tie the product to your temples; women can use it as well as men, and both during the day and night. Another use of the seed is to mix it with flour or black oats and feed it to birds. They will become drowsy or fall asleep and lose their instinct to fly away when approached. You can simply pick them up with your hands and take them with you. But no one should be allowed to eat the seeds – unless he is an enemy. Whoever eats the seeds will die or fall



6.
Jacob van Maerlant, *Der naturen bloeme*, London, BL MS Add 11.390, fol. 77v, left column. Texts and images of 'Salix' (wilghen, willow) and 'Tymus' (tymus, thyme).

into a deep coma-like sleep which can be fatal (ill. 3, p. 216).

Aside from catching birds, there is reputedly another useful application for the plant. It is said, according to Maerlant and Cantimpré, that there was once a bishop who suffered greatly from lustful, not to say lewd thoughts. This was problematic, for as a clergyman he was expected to be celibate and immune to sexual desire. The poor bishop had asked many wise men for advice but nothing helped. Finally, he had some henbane ground into a powder and sprinkled his noble parts with it that 'cooled' them so effectively that he no longer suffered from erotic desires of any sort. Does henbane truly help in such a situation? Maerlant expresses no doubts and no opinion about it and, perhaps, he leaves it to the reader to decide. His final remark about the herb is that it is also very good for a toothache.

It is noteworthy that one of the illnesses that is mentioned more than once is epilepsy, or falling sickness. More than one herb or plant is cited as being helpful: aloe, primrose, rue and sage. The fact that the disease is mentioned recurrently brings up the question of whether or not it was more common in the Middle Ages than it is today. It is understandable that you would want to have a medicine for the affliction, since the sight of someone in the throes of an epileptic fit calls for action, even if there is not much a bystander can really do, except see to it that the patient does not injure himself. Intestinal problems and flatulence are common through the ages, of course, and they could be treated in Maerlant's time in various ways, either preventively or when the need was urgent. Various herbs were recommended for the spleen and liver as well, such as wormwood, *centaurium*, fennel and marigold. It is striking that the applications given by Maerlant for certain plants are often very similar to those found in homeopathy today (see also Appendix II). One example is aloe taken internally for stomach problems and, externally, for insect bites or skin problems; anise for stomach and intestinal problems or flatulence; cumin for breast-feeding women; comfrey (*Symphytum*) to speed the healing of broken bones, bruises, sprains and the like and mint for its antibacterial function in the mouth. As for camphor, we still come across warnings here and there that it can diminish a man's sexual performance.

Finally, we should remark that Maerlant's herb book offers general information only; it does not give precise prescriptions. Amounts, specifications about temperatures and other instructions for medicinal use are hardly mentioned or absent altogether. That was the case for many recipe books of the time, which often gave only very general instructions for use.

Copying of names

If you look at the plant names in the first and second columns of the table, you will note that the Middle Dutch names frequently differ considerably from the Latin. This phenomenon holds true for names in general. When copying a text, a copyist often had nothing substantial to go on when it came to the names of people or objects. If he was unacquainted with the material and it was not clear to him what or whom was intended in his source, names were sometimes altered. An earlier copyist may have been faced with the same problem, moreover, and forced to make his own decision on how the name should be written. The result was that an individual's name might acquire successive variations over the years. The same held for objects and certainly plants with Latin names that could be altered abruptly by a copyist or gradually evolve over time into something quite different. We see that here for example in the curious Latin name 'Jusquiami', used by both Thomas and Maerlant. This seems to be a bastardization of the Greek word 'Hyoscyamus' (from 'húos' and 'kúamos') which is the official botanical name in Latin for henbane.[13]

Leaving aside spelling variants, other examples of bastardized names in Maerlant's text are 'Cruentamea' for Centaurea, 'Propinum' for Orpinum, 'Pesullium' for Psilium, 'Saliva' for Salvia and 'Zeduare' for Zodearium. Sometimes comparing different manuscripts of *Der naturen bloeme* leads us immediately to the correct name; other times it is more of a puzzle. In the article on parsley (no. 19) we read that this herb is good against 'physics' ('jeghen fisiken').[14] Perhaps to counteract medicine? This is the sense of the word as it is used in the article on poppies: 'Both the root and the seed are good as medicine' (*Beide wortel ende saet nes ten fisiken niet quaet)* (Bk. X, vs. 475-476). Fortunately, a different manuscript uses the word 'tisike' in the article on parsley, meaning tuberculosis or *Phthisis* in Latin.[15] To a copyist, *t* and *f* are easy to misread if you are not sure what is really meant. *Ruta* or rue helps to expel the 'feodine' (Bk. X, vs. 555).[16] The error here is that a long or straight s is confused with an *f*, but something else went wrong as well, because the intended word was 'secondine' or afterbirth (Latin: *secundinum*).[17] Maerlant would have known that but the copyist in question, or one of his predecessors in an earlier copy, seemingly did not. Errors like 'tisike' for *Phthisis* and 'secondine' for *secundinum* have to do with words that are still close to Latin and, consequently, less familiar and more liable to undergo transcription mistakes. Sometimes Maerlant would leave a Latin word untranslated in *Der naturen bloeme*. Would his audience have known when they read about Malrove or white horehound (*Marrubium*) that a 'suppositoris' – in Middle Dutch actually 'suppositorie' and in Latin a *suppositorium* – was a suppository? The English speaker would have, but in Dutch the word has a Germanic root, 'zetpil' and is quite different.

The text is occasionally confusing or contains errors. For example, it says of the poppy that it is good for the 'peste', which is the plague. In another manuscript of *Der naturen*

7.
Medical/pharmaceutical manuscript, second half fourteenth century.
Dim. 195 x 135 mm. The Hague, KB MS 71 H 45, fols. 25v-26r.
The manuscript contains, among other writings, the complete herbal book from Maerlant's *Der naturen bloeme*.

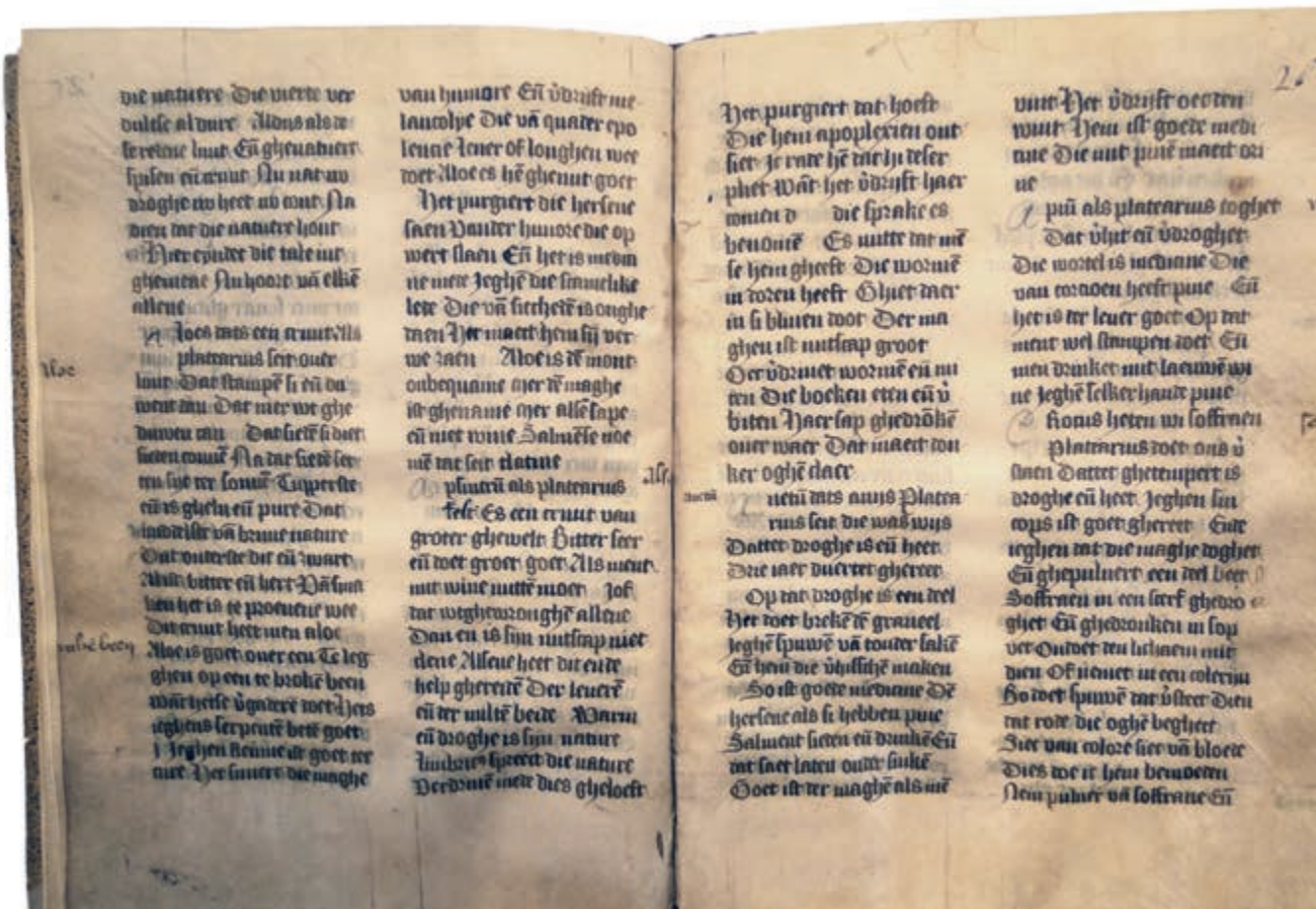
p. 227 ▸▸
The Hague, KB MS KA 16, f. 041v, detail of ill. 2.

bloeme, however, we find the word 'puuste', boils or pimples – abscesses.[18] To call a medicinal plant *Viola* or violet is not very specific; the genus covers many different types. Perhaps the *Viola tricolor* or pansy was meant. It is still said today that it has a laxative effect or as Maerlant says, '[i]t's good for loosening the body'.[19]

Illustrations in manuscripts of *Der naturen bloeme*

As we said earlier, there are seven extant illustrated manuscripts of *Der naturen bloeme*. Six of them have a large number of miniatures that are, for the most part, painted. One manuscript has only pen drawings, of which there are many however. The representations of humans and animals are more or less true to life, or at least recognizable. The depiction of an elephant does not always resemble the animal all that much – in all likelihood, no illuminator in the Low Countries had ever seen a pachyderm – yet, we can usually still recognize it as an elephant (ill. 4, p. 218). Medieval bestiaries, collections of stories or anecdotes about animals, often included illustrations and could have served as models. That also holds for the mythological animals. Mermaids and sea monks were represented in the iconographic tradition as 'true to life'. Birds were somewhat more difficult to reproduce in recognizable form. In general, we find illustrations in the articles of the herb book that are less true to life than those in the lemmas on for example, people, animals or birds. That is also the case for the illustrations of trees, stones and metals. Miniaturists, naturally, were not just guided by models and traditions in creating their illustrations. There was also Maerlant's text. It is clear that some illuminators were inspired by the writer's descriptions, that they obviously read with care.[20] The choice of topics to illustrate differed from one manuscript to another and in some manuscripts humans and animals are illustrated, but trees and plants are not.

The painted miniatures of animals are normally placed in a rectangular frame for which space was left in the text columns. Illustrations of plants, trees and stones are not insert-



ed in the body of the text but placed here and there in the margins (ill. 5, p. 219). Miniatures and pen drawings made a manuscript far more attractive of course, and more expensive, than an undecorated manuscript. But were illustrations really necessary for a text like *Der naturen bloeme*? It is perhaps significant that the four other more or less complete manuscripts are not richly illustrated. One contains only one pen drawing and the other two have only one or two decorated initials. The eleventh manuscript has almost no decoration. It survived over the years perhaps because of its unique combination of texts (*Der naturen bloeme* and the Middle Dutch *Reynard the Fox*). Perhaps an even more important reason is that the manuscript lay hidden away for centuries in the library of a castle in Germany.[21] We could consider it perhaps as the exception that proves the rule that unillustrated books were more likely to be discarded than illustrated ones. In any case, the fragments of *Der naturen bloeme* that are known to us today do not show any traces of illustrations.[22]

Good illustrations of the herbs would have been helpful, of course, particularly with an eye to medicinal use. For herbs that came from the Near or Far East such as camphor ('an herb in the Orient') and spikenard (grows 'in Syria and the land of India'), it was not crucial to recognize the plant from an image. For domestic plants that was a different matter. A good example is the manuscript of *Der naturen bloeme* with its many pen drawings. A great number of them depict plants with their important characteristics, making them easy to identify.[23] That is not the case for all of them, however. The *Salix* or willow has a drawing accompanying it that is clearly a pollard willow, a tree that everyone would have known. On the other hand, the illustration of the 'Tymus' that supposedly grew in the Orient, is an undefinable tree (ill. 6, p. 222). The mention of this tree both in the work of Maerlant (Bk. VIII, vs. 871-884) and of his source, Thomas of Cantimpré, is based on a mistake and a distortion of the name because the tree in question is the acacia or setim tree, described by Maerlant in verses 831-850.[24]

Der naturen bloeme in a different context

So far, we have only considered manuscripts with the complete text of *Der naturen bloeme*. We must not forget, however, that parts or indeed all of Maerlant's nature encyclopaedias also reached readers or listeners in combination with other texts. In three manuscripts, *Der naturen bloeme* is preceded by a didactic text on aspects of astronomy, physics and astrology entitled *Physics of the Universe (De natuurkunde van het geheelal)*.[25] It has also been found in a combination with a totally different type of text, such as the famous animal fable, *Reynard the Fox*.

Occasionally, specific passages of *Der naturen bloeme* were appropriated and included in or alongside other texts. We find excerpts in booklets drawn up by surgeons for their own use. In 1350, the Flemish surgeon or physician Jan van Aalter wrote down medical notes for his own use in several loose quires or booklets that he later bound together as one book. We come across passages from *Der naturen bloeme* together with, parts of, the *Physics of the Universe*, the *Antidotarium Nicolai*, the *Liber de simplicibus*. This refers to the 'Book of *Simplicia* or Simple Medicines', better known as *Circa instans,* by the twelfth-century physician Johannes Platearius,[26] a medical manual by pseudo-Avicenna and both the *Book of Medicines* and the *Surgery (Boec van medicinen* and *de Chirurgie)* by Jan Yperman.[27]

Although Maerlant's herb book was not a true collection of remedies, its material appeared to be useful in combination with medical, surgical and pharmaceutical works such as the *Book of Medicines* in Dutch, the *Antidotarium Nicolai* and the *Chirurgie* by Guy de Chauliac. A manuscript dating from 1377 contains a unique compilation of parts of various medical and pharmaceutical texts, the *Circa instans* and the *Liber de vinis* or 'wine book' by Arnaldus de Villanova (1235-1311), plus nine excerpts from *Der naturen bloeme*, four of which are taken from the herb book.[28] In manuscripts that were made up of prose works like these, the verses were simply written in a continuous line, as if they were prose.

It is striking, but not surprising, that the herbal book of *Der naturen bloeme* is the only section of the text to have been copied twice as an independent entity, albeit together with other medical and didactic works.[29] The Royal Library in The Hague has an interesting small manuscript from the second half of the fourteenth century comprising only forty-two parchment leaves.[30] In addition to the *Book of Medicines in Dutch* it includes the complete herb book (fols. 25-31; ill. 7, p. 224). The layout has two narrow columns of verses from Maerlant's Book X written as prose. We find only the text that the scribe or copyist wrote in black ink in a *littera textualis*, a type of late-medieval script. The initials should have been added later in red or blue but that was never done. Here and there, a keyword is written in cursive script in the margins to make it easier to find particular passages. In the case of the aloe, there is a note in the margin, mentioning that it is useful in case of a 'broken bone'.

A comparison of the text with the standard edition by Verwijs reveals variants. *Absinthium* is found here as '[A]psintrum', with the Dutch name given in the margin: 'alse[m]'. *Iusquiami* is '[I]usquiamenie' here, next to which is written a variation of the regular Dutch word for henbane 'bilwortel', instead of the more common 'bilzekruid'. There are no illustrations whatsoever, which leads us to infer that the owner of the manuscript was able to use the contents without needing to know what the herbs looked like. Were people closer to nature than we are today and were they capable of identifying and naming medicinal plants on the basis of their experience?

The provincial library of Zeeland in Middelburg holds a relatively late manuscript from around 1500 containing the *Chirurgie* by Guy de Chauliac, a fragment of the rhyming *Disticha Catonis*, various medical and pharmaceutical treatises and, originally, the complete herb book of *Der naturen bloeme*. Unfortunately, the manuscript is so badly damaged that the last two lemmas are missing. This manuscript, which appears to have been intended for the private use of a surgeon, demonstrates for how long interest in the herb book of Jacob van Maerlant continued.[31]

NOTES

[1] *Jacob van Maerlant's Der naturen bloeme*. Utrecht 1970. Naar de letter – De overlevering van de Middelnederlandse letterkunde – Een reeks kleine tentoonstellingen ingericht op de zolder van het Instituut De Vooys door een werkgroep van Utrechtse neerlandici, no. 4, p. 3. The text is online: https://www.dbnl.org/titels/titel.php?id=maer002dern01

[2] F.P. van Oostrom, *Maerlants wereld*. Amsterdam 1996 and F.P. van Oostrom, *Stemmen op schrift. Geschiedenis van de Nederlandse literatuur vanaf het begin tot 1300*. Amsterdam 2006, chap. 5, in particular pp. 502-549.

[3] Compare *Thomas Cantimpratensis Liber de natura rerum. Editio princeps secundum codices manuscriptos*, vol. I: *Text*. Helmut Boese (ed.), Berlin/New York 1973, pp. vi-vii.

[4] J.P. Westgeest, *De natuur in beeld. Middeleeuwse mensen, dieren, planten en stenen in de geïllustreerde handschriften van Jacob van Maerlants* Der naturen bloeme. [Proefschrift Universiteit Leiden] 2006, p. 11; Van Oostrom, op. cit. 1996 (n. 2), pp. 143-145.

[5] R. Jansen-Sieben, *Repertorium van de Middelnederlandse Artes-literatuur*. Utrecht 1989, pp. 71-72 and Westgeest, op. cit. (n. 4), p. 27.

[6] J.A.A.M. Biemans, *Onsen Speghele Ystoriale in Vlaemsche. Codicologisch onderzoek naar de overlevering van de Spiegel historiael van Jacob van Maerlant, Philip Utenbroeke en Lodewijk van Velthem, met een beschrijving van de handschriften en fragmenten*. 2 vols. Leuven 1997. Schrift en Schriftdragers in de Nederlanden in de Middeleeuwen, II-1 and II-2, here vol. 1, chapter entitled *Produktie en receptie.*

[7] Westgeest, op. cit. (n. 4) and M.L. Meuwese, *Beeldend vertellen. De verluchte handschriften van Jacob van Maerlants* Rijmbijbel *en* Spiegel Historiael. Proefschrift Universiteit Leiden 2001, pp. 27-28. The question marks in the table next to the *Rijmbijbel* and *Der naturen bloeme* concern fragments for which the number of manuscripts to which they belonged has not yet been determined.

[8] Biemans, op. cit. (n. 6), pp. 245-246.

[9] Boese, op. cit. (n. 3), pp. 332-333; compare E. Verwijs (ed.), *Jacob van Maerlant's Naturen bloeme*. Groningen 1878. Bibliotheek van Middelnederlandsche Letterkunde; reprint Arnhem 1980, p. 162, note 1 with 'Boek IX' instead of 'Boek XI'.

[10] Verwijs, op. cit. (n. 9), Boek X, pp. 160-185 and Boese, op. cit. (n. 3), pp. 342-350: Liber XII, *De herbis aromaticus*.

[11] *'Lumbricos, spreect die scrifture, Verdrijftet mede, dies ghelovet; Die woermen in sijn oren hevet Ghietse daarin, si bliven doet; Oec verdrijftet woerme ende miten, Die boeken eten ende verbiten*; Verwijs, op. cit. (n. 9), Bk X, vss. 96-97, 104-105 and 107-108; compare Boese, op. cit. (n. 3), p. 343.

[12] *Bedi seght men over luut, Dat hare roeke es ghenatuurt Alsoe dat soe die manne vurt*'; Verwijs, op. cit. (n. 9), Bk X, vss. 198-200; compare Boese, op. cit. (n. 3), p. 344. In Verwijs, op. cit. (n. 9), p. 167, note 2 the Latin quotation gives 'mores'; it should be 'mares' ('men'). The Middle Dutch verb 'vuren' does indeed mean 'unman' or 'castrate'; see J. Verdam, *Middelnederlandsch handwoordenboek*. Onveranderde herdruk en van het woord sterne af opnieuw bewerkt door C.H. Ebbinge Wubben. 's-Gravenhage [1932].

[13] H.G.Th. Frencken, *T bouck van wondre 1513*. Dissertation, University of Leiden 1934, p. 118.

[14] Verwijs, op. cit. (n. 9), p. 176, vs. 464.

[15] Verdam, op. cit. (n. 12), p. 607.

[16] 'om te ghelossen die feodine'; Verwijs, op. cit. (n. 9), Bk X, vs. 555.

[17] Verwijs, op. cit. (n. 9), p. 180, note 1 and Verdam, op. cit. (n. 12), p. 534.

[18] Verwijs, op. cit. (n. 9), p. 177, note 2.

[19] 'Ets goed […] den lechame tontbinden mede'; Verwijs, op. cit. (n. 9), Bk X, vss. 651-652.

[20] P.F.J. Obbema on Leiden, UB MS BPL 14 A, see P.F.J. Obbema & L.B. Holthuis, 'De dierenwereld', in: *Goed gezien. Tien eeuwen wetenschap in handschrift en druk. Catalogus van de tentoonstelling ter gelegenheid van het vierhonderdjarig bestaan van de Universiteitsbibliotheek te Leiden*. Exhib. cat., Leiden 1987, pp. 133-134. See also Westgeest, op. cit. (n. 4), pp. 281-285.

[21] The manuscript was only discovered in 1908 in the library of Schloß Dyck in Neuß and moved in 1991 to a public library, the University Library of Münster: MS N.R. 381. See E.A. Overgaauw, 'Die Dycksche Handschrift. Ihre Entdeckung, Herkunft, Datierung und früheren Besitzer', in: B. Haller & H. Mühl (eds.), *Westfälische Wilhelms-Universität Münster. Die Dycksche Handschrift*. Münster 1992. Kulturstiftung der Länder, *Patrimonia*, Heft 44, pp. 40-58.

[22] Compare A. van Panthaleon van Eck-Kamstra, 'Jacob van Maerlant's "Der naturen bloeme". Twee notities over handschriften', in: *Het Boek* 36 (1963-1964), p. 225.

[23] London, British Library Add. MS 11.390, see Westgeest, op. cit. (n. 4), pp. 153-154.

[24] W.H. van de Sande Bakhuyzen, 'Aanteekeningen op *Der Naturen Bloeme*', in: *Tijdschrift voor Nederlandsche Taal- en Letterkunde* 2 (1882), pp. 99-100. The 'tymus wood' that was imported by Solomon (see Maerlant in Bk. VIII, vs. 880) is thought to have been algum (see 1 Kings 10: 11).

[25] R. Jansen-Sieben, *De natuurkunde van het geheelal. Een 13de-eeuws middelnederlands leerdicht*. 2 vols. Brussels 1968 and Westgeest, op. cit. (n. 4), p. 67.

[26] E. Huizenga, *Een nuttelike practijke van cirurgien. Geneeskunde en astrologie in het Middelnederlandse handschrift Wenen, Österreichische Nationalbibliothek, 2818*. Hilversum 1997. Middeleeuwse Studies en Bronnen, LIV, pp. 71-73.

[27] J.A.A.M. Biemans, 'Het chirurgijnsboek van Jan van Aalter. Over schaalvergroting en nieuwe toepassingen bij de productie en vormgeving van het handgeschreven boek in de veertiende eeuw', in: *Jaarboek voor Nederlandse boekgeschiedenis* 6: Geschreven, gedrukt, gedigitaliseerd: elf eeuwen boekcultuur in de Lage Landen (1999), pp. 67-86. Another example of a manuscript by or for a surgeon with a few passages from *Der naturen bloeme* is Ghent, UB MS 1457; see W.L. Braekman, 'Een gecommentarieerd Antidotarium en de *Circa instans* van Platearius in een Oostmiddelnederlandse bewerking', in: *Scientiarum historia* 9 (1967), Huldenummer Prof. Dr. L. Elaut, pp. 205-206, an illustration on p. 195. For the classification of this manuscript, see Huizenga, op. cit. (n. 26), p. 188, including note 42.

[28] London, British Library Loan MS 29/332; see W.L. Braekman, 'Een onbekend Mnl. medisch manuscript uit de veertiende eeuw', in: *Verslagen en mededelingen van de Vlaamse Academie voor Taal- en Letterkunde* (Nieuwe reeks) 1968, p. 99-131, and on Maerlant's herb book in herbal and medical books, Van Panthaleon van Eck-Kamstra, art. cit. (n. 22), p. 225.

[29] Huizenga, op. cit. (n. 26), p. 197 states that the herb book has been 'regularly transmitted as an independent text'. However, of the examples he gives, this is only true for The Hague, KB MS 71 H 45 and Middelburg, Zeeuwse Bibliotheek MS 6353.

[30] The Hague, KB MS 71 H 45.

[31] Van Panthaleon van Eck-Kamstra, art. cit. (n. 22), p. 227. See also MMDC: Medieval Manuscripts in Dutch Collections: www.mmdc.nl at Middelburg, Zeeuwse Bibliotheek MS 6353 (with illustration).

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So esser eraude nole vouden
Behouer dielic den houde
ay er awmen claue en met langē
E n̄ met beckeu velteu behangē
E n̄ die ouer haer sprēke ballen



Aster nole es daer bi gewallen
So clene moude hebben die liede
D atli nitt euen clenen riede
I n zusthen moetē d li bi leuen



Aster nole es daer beuoue
Die menschen ere all ic hore
D e nolsthen die liede bi sporen
B ider wlie daes har mancre
B ore dat li comen teere rumere



Aster liede sim daer bi
Die mēhe atumalyn
I of cyclopen in latijn

D ie met euen osthe sim
E n̄ staende met vorhoefde voe



Aster es daer gheboren
Die lopen vremderen leere
ay it euen veere mijn no meere
S ochtan es die voet so breet
D atli ieghen die sonne heet
H em beschermen d'mede
W aer so si rusten theere stede



Aster lie dies gheloues
vuytmen d'al sonder houet
h aer osthen in haer scoudre staende
I n haer borst · n · gate vre gaende
O uer nole ende ouer mont
E ysenc sim si all een hont



Aster liede sim daer beneuen

11

PLANTS IN MEDIEVAL LITERATURE A THORNY ROSE BUSH AND OTHER GREENERY

LOVE, LUST AND SUFFERING IN THE *ROMANCE OF THE ROSE*



Esther Mulders

1. ◂
Guillaume de Lorris and Jean le Meun, *Roman de la rose*, 1350-1360.
Dim. 278 x 210 (210 x 153) mm. The Hague, MMW MS 10 B 29, fol. 1r.
Quatrefoil with the young man in bed with his rosebush, his ablutions, his walk along the river and his approach to the garden.

2.
Guillaume de Lorris and Jean le Meun, *Roman de la rose*, first half fourteenth century.
Dim. 235 x 176 (185 x 135) mm. The Hague, KB MS 120 D 13, fol. 1r.
The young man in bed with the rosebush, *Danger*, and the walled garden.

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600*.
Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_CH11

Abstract
Roses are ambiguous in nature. Associated with Aphrodite, they stand for love and lust, but also for the sharp thorns of heartache. The rose is an ode to the Virgin Mary, while it also symbolizes the suffering of Christ. In the *Romance of the Rose*, in which a rose bush plays the leading role, this ambiguity is also expressed. The garden where the bush grows is a heavenly paradise, but also a garden of lust. The love of the narrator for one of the rosebuds is sweet, but also heart-breaking because he is not allowed to touch it. When he nevertheless indulges himself on the bud, this leads to the end of the bud, but fills him with bliss.

Keywords: Romance of the Rose, Love, Sexuality, Garden

Roses and rose bushes have stirred the imagination since time immemorial. Over the course of time, they have taken on a broad range of meanings. In classical mythology, the rose was particularly associated with Aphrodite and Amor. It stood for love and beauty, but also for the pain of love. In the bible there is almost no mention of the rose, but in medieval literature it was given a place of honour. One of the most elaborate and well-known literary works of the Middle Ages is the *Romance of the Rose* (*Roman de la Rose*), a long poem full of plants, perfumes and emotions. What follows is a sketch of this multifaceted story and its seductive natural setting.

The *Romance of the Rose* was written in France between 1225 and 1270, in an environment where the love between a man and a woman had become the main focus of social interaction, surrounded by an elaborate code of conventions known as 'courtly love'. The *Romance of the Rose* is an allegorical poem written in Old French.[1] The main character in the story is, as its name suggests, a rose. Thus, it is no surprise that the very first page of most illustrated copies of the *Romance* has an illumination of a rose bush. Taken in its symbolic sense, the rose calls up associations with the Virgin Mary. However, when reading the text with its many racy passages, one tends to think more of Venus, who also has the rose as her symbol.[2] The reader may also wonder about the setting of the story: a walled garden full of greenery. Is it a heavenly paradise or a garden of earthly pleasure?[3] What we do know is that a rose or rose bush as an image of the Virgin never has thorns, while the rose in the *Romance* is one of the pricklier types, as quickly becomes evident in the story.

The *Romance*, the rose and love

The *Romance of the Rose* is by far the most famous of the many works on the subject of love in the Middle Ages, from the twelfth century onwards. To a greater or lesser degree, all of these works found their inspiration in the *Art of Love* (*Ars amatoria*) by Ovid.[4] Some are quite theoretical in nature, such as the work of Andreas Capellanus, *On Love* (*De amore*).[5] Others are more practical, such as the poems that instructed women in good manners and honourable, chaste behaviour. The aim was not simply to attain virtue for their own sake, but also to make themselves pure and unattainable objects of love for their admirers. Instructions to men in such literature concerned proper behaviour towards women and emphasized, above all, the inevitability of heartache caused by a burning love for a chaste, high-born lady, who was by definition unattainable. This was presented as the ideal of courtly love. It made the suitor loyal, restrained, considerate, long-suffering and patient, ensuring that he attained the ideal of knightly rectitude and Christian virtue.[6] Other similar treatises had a less lofty goal and concentrated on proper compliance with the rules of etiquette to achieve success in love. In addition to these more or less serious works, there is a great diversity of love literature from the period of a lighter, often, ribald kind, focusing on the realization of the sexual act. A good example of this is the old French *Key to Love* (*La clef d'amors*).[7]

The *Romance of the Rose* would seem to incorporate all of these different approaches to love. It is the work of two authors, Guillaume de Lorris and Jean de Meun.[8] Guillaume wrote the first verses of the *Romance of the Rose*, well over four thousand lines, which he says are the account of a dream he had when he was twenty.[9] He notes that almost five years had passed since that dream.[10] Jean de Meun recounts that he



Autres gens
Dient q̄ en songes
Ja ne doivent non
Ne menconges
Mais on puet
Tel songe songe
Qui ne sont mie
Ceu songier-

Lumeçamme an
de mō aage
A point q̄ mis
meut le aage
des iones gens
couchiez mestoie
vne nuit
Si com ie dormoie

Ne me semble pas q̄ ce soit songes
Ains me samble q̄ ce soit mençonge
Car songes ne sont pas a croire
Ce dient cil qui les font escrire
Mais il samble a maintes gens
Que songes soient apartenant
Aucunes fois q̄ nō nacordes
Ne sont pas songes a folles
Mais sont escrist la raison
Pour quoy auint auroy apelon
Quiex cause ne qui les fait
Dont songes ou mutardie
Ce trouve q̄ songes amaigrie
Ce veca por fol mie tenue
Ne endroit moi auint fiance
Songes sont senefiance
Es biaus gens z des amis
Puis songent ceuus

Me semble mon dormoie mie formeus
Vn songe en mō dormant
Mis me fist z mis me plorer
Mais songe onques mes tien ner
Mieus trestout ne dit
Ne fist ne trouva
Veil cel songe remoter
Nos caers plus reconforter
Mes leme preie z ormade
Cemō ou mille demande
Mis ie veul q̄ vous mā
Ou apeler q̄ ie conmenc
Cest li rommās de la rose
Ou lare dames est tote enclose
Amitié en est bēne z mise
Dont dire q̄ ie le conme

3.
Roman de la rose. The Hague, MMW MS 10 B 29, fol. 1r, detail. Detail of the quatrefoil with the poet dreaming.

picked up the work where Guillaume left off, forty years later, which would make it around 1270. He added no less than eighteen thousand lines.[11] The verses by the two writers are completely different in tone. The first part by Guillaume, about a lover's burning passion for a rosebud, is a lyrical, and relatively decorous courtly tale in both content and choice of words, in sharp contrast to the writing of Jean de Meun that reveals the denouement of the story, the plucking of the rose, in a framework of satirical social criticism. When it came to descriptions of the rose, neither author hesitated to use explicit, eroticized language. The *Romance* occasionally reads like a book of etiquette, at other times as a work on morality, or even a treatise on (Christian?) virtue. There is a struggle between good and evil, there is the pain of the lover caused by Cupid's arrows and the unattainability of the object of his love, but ultimately there is also the consummation of the sexual act. The *Romance of the Rose* remains a puzzling book with all its contradictions, but puzzling or not, it was one of the most famous and influential works of the late Middle Ages. This is attested by the fact that approximately 320 manuscripts and fragments of the poem have come down to us.[12] The many medieval and later translations and variations of the *Romance of the Rose* are also an indication of its importance. In addition, there are many quotations from, references to and interpretations of the work. Some writers, such as Christine de Pizan, felt compelled to enter into heated discussion of the book, whereas others defended it. The modern debate about the meaning of the *Romance* and whether the two parts of the book should be seen as a unified whole is still very much alive today.[13]

A few manuscripts of the *Romance* of the Rose are found in Dutch collections. We shall consider two illustrated copies of it, one from the first half of the fourteenth century which is housed in the Royal Library in The Hague (MS 120 D 13), and the second from around 1350-1360 which is kept in the collection of the Museum Meermanno / House of the Book, also in The Hague (MS 10 B 29).[14] In both codices, just as in many of the illustrated manuscripts of the *Romance* as we pointed out above, there is an illustration of a rose bush at the very beginning, on fol. 1r (ills. 1 and 2, pp. 229 and 231). The illustration cycle of the codex in Meermanno contains more greenery in addition to the rose, but not as much as is mentioned in the text.



4.
Roman de la rose. The Hague, MMW MS 10 B 29, fol. 4r, detail.
Lady *Idleness* opens the gate with a large key for the young man to enter the garden.

The prologue: the garden of *pleasure*

Guillaume writes how he, the young narrator, dreams that he wakes at daybreak and feels the desire to go for a walk and listen to the singing of the birds in the budding pool greenery. After the grey winter months, he writes, it is time for the glorious happy days of love. The black earth is again clad in the green mantel of grass, bushes and plants, and adorned with the bright colours of flowers. The birds are joyful and no longer silent, young people will fall in love and be full of joy. Guillaume describes how he takes pleasure in all of this beauty as he walks through the green grass along a river, until he happens upon a wall enclosing a garden. This wall is covered with images of personifications of evil and uncourtly human qualities: *Impropriety, Avarice, Sadness, Old Age, Hypocrisy, Faithlessness*, *Stinginess*, *Envy* and *Poverty*. *Hate* is found at the centre of the group.[15]

Desiring to enter the garden, which he believes must be of an otherworldly enchantment, with beautiful green trees full of harmoniously singing birds, he desperately seeks for an entrance. At long last he finds a small door which is opened by a beautiful maiden, *Lady Idleness*. Inside the garden, the young man walks down an extraordinary meandering path fragrant with fennel, mint and garlic. In a meadow in the middle of a wood, the young man comes across an elegant, gay and beautiful company of personifications, quite in contrast to the ugly and ill-tempered collection on the external wall.[16] This group is devoted to pleasure and entertainment, to mutual courtliness and harmonious company. There is music and singing. *Sir Pleasure*, the owner of the garden and his mistress *Gladness* dance together with a high-spirited group of young revellers. *Lady Courtesy* tries to draw the young narrator into the festivities. Among the group are the personifications *Youth, Sincerity* and *Beauty. Also included are Generosity*, the opposite of *Stinginess*, and *Wealth*, the opposite of *Poverty*. The *God of Love*, also called *Amors*, together with his companion *Pleasant Looks* is also part of this colourful company, and busy taking *Pride* to task.[17]

In the opening miniature of the Meermanno manuscript we see the poet lying in bed framed in a quatrefoil against a golden background (ill. 3, p. 232). His eyes are closed, and his head is resting on his hand. At the foot of the bed there is a blossoming rose bush, the main character of the story. Completely in keeping with the illustration tradition of the *Romance of the Rose,* the bush is very stylized and curls over the sleeping young man. On fol. 1r of the manuscript in the Royal Library, the poet is shown lying in a similar position in bed, although sitting up somewhat more erectly (ill. 2, p. 231). Behind him is an attractive, curling rose bush. At the foot of the bed stands *Danger*, armed with a club. This is a character that later in the story turns out to be the arch-enemy of the narrator. To his right is a tower and next to it the walled garden, which we recognize by the trees that rise out of it. Someone is looking over the crenelated wall. The miniature can be seen as a summary of the essential elements of the story: upon opening the codex, the reader immediately encounters a dream (the bed), the narrator, his goal (the rose), his arch-enemy and the setting of the story (the walled garden). The events are illustrated extensively in the Meermanno manuscript. In addition to the miniature of the sleeping poet, there is an image of the poet putting on his shoes on the same page. Given the setting, it would appear that he has just risen from his bed and dressed. Beneath the illustration of the poet in bed is another miniature depicting the narrator walking along the verdant banks of a river. He is clearly enjoying himself. To the right of this scene is a minia-



ture in which we see the young man trying to squeeze through the small door of the walled garden (ill. 1, p. 229). On fol. 4r of the same manuscript *Lady Idleness* is seen letting the young man into the garden with the aid of a large key (ill. 4, p. 233).

A garden of pleasure and the tantalizing thorns of love

The *god of love* scatters love wherever he chooses, and he himself is a pleasure to behold. He wears a coat woven not of silk, but of 'amoureites', lilies of the valley. The coat is decorated with birds, lionesses, leopards and other animals, all of which are made out of flowers. His attire includes every summer flower, even the rarest, and not a single colour is missing. All the gaps between the flowers were filled with rose petals. He wears a hat of roses and above his head nightingales flutter, scattering rose petals. All manner of other birds swarm around him.[18] He seems to be an angel straight from heaven: 'Il sembloit que ce fust un anges / Qui fust tantost venus du ciau.'[19]

Love is equivocal; it is not always reciprocated and can in fact stir repugnance, a fact that Ovid had articulated many centuries earlier. In the story of Daphne and Apollo, Ovid equipped Amor, the God of Love, with two arrows: 'He took two arrows out of his quiver, each with a different purpose: one smothers the fire of love, the other inflames it. The arrow that inflames is made of gold and its tip glitters; the arrow that smothers is rather blunt, and its tip is made of lead. Amor shot the second of these at Daphne; the first penetrated between Apollo's ribs and pierced his heart. He was smitten immediately with love; she wanted to have nothing to do with love.'[20] Apollo pursues Daphne fervently, whereas she begs the river god Peneus to rid her of her beauty so as to be free of Apollo. A miniature in a fifteenth century manuscript in the Royal Library in The Hague of *The Epistle of Othea (L'Epistre d'Othea*) by Christine de Pizan, depicts Peneus granting Daphne her wish: he turns her into a laurel tree. Poor Apollo looks on dumbfounded (ill. 5, p. 235).[21] Guillaume elaborates Ovid's notion of the equivocality of love in the form of ten different arrows and two bows. These are kept and guarded by the young boy *Pleasant Looks.* One bow is ugly, made from the wood of a shrub with bitter fruit, knotted and black in colour. The other bow is slender, made from a supple twig and decorated with miniatures of women and elegant young men. The best of the ten arrows has sharp points and, except for the wooden shafts and feathers, are made of pure gold. The names of the arrows are in some instances the same as the names of the personifications in the *Romance*. The first arrow is called *Beauty*, the second, the one that causes the most pain, is *Simplicity*; the third is called *Honesty* and its feathers *Courtesy* and *Valour*. The fourth arrow is named *Company* and bears a heavy tip so it cannot fly too far; shot from close by, the wound it causes is painful. The fifth is called *Fair Seeming*. The five other arrows are black and ugly. The first is called *Pride*, the second *Deceit* and the third *Shame*. The fourth bears the name *Despair* and the fifth *Inconstancy*.[22]

After having enjoyed the company of the personifications for a while and when the dancers had gone off in search of a shady spot to woo their ladies, the young man decides to explore the rest of the garden, hoping to find laurels, pines, beech trees, hazel trees, oaks and walnuts. He wanders on through the garden, among the woods and shrubs, sneakingly followed by the *God of Love* and *Pleasant Look*s. The narrator writes that he feels happy and buoyant. On his stroll through the garden he comes across all manner of trees and other plants, remarking that it probably contained every possible fruit-bearing tree, except for those that are poisonous. He sees pomegranate trees and various types of nut trees, for example nutmeg trees, but also almond, fig and date trees. The garden contains every spice imaginable: cloves, liquorice, cinnamon, cardamom (which Guillaume calls 'new seeds of paradise'), zedoary (white turmeric) and anise. Guillaume concludes this fairly exotic list with peaches 'with which one likes to end a meal'.[23] There are also domestic trees in the orchard bearing quinces, peaches, plums, medlars, apples and pears, rowan berries and nuts. There are chestnut trees, tall pines and laurels. Groups of five or six olive and cypress trees are also to be seen in the garden, along with elms, beech trees, alders, aspens, spruce, sycamores and oaks. All of these great trees are planted so that their leafy canopies reach out and touch one another, sheltering the tender grass and herbs from the sun so that they could grow luxuriantly. Deer and goats graze, and a host of squirrels scamper in the branches. Rabbits are engaged in their amorous games in some forty different variations on the fresh, green grass. *Pleasure* has arranged for little streams to be dug. These are also shaded by trees and the grass is so soft that you could lie down there with your love, as if on a feather bed. A multitude of flowers grow here in every season, in winter as well as summer, in an overwhelming variety of colours and intoxicating fragrances.[24] In short, the wealth of sensuous delights described by Guillaume conjures up a picture of the garden as a paradise of carefree pleasure.

Walking further through the garden, the young man comes upon a beautiful spot where, under a handsome pine tree, the like of which had not been seen 'since Charlemagne or Pepin', he finds the pond into which Narcissus had gazed, with two crystals on the bottom.[25] This is an enchanted pond; whoever gazes at the reflection in its waters will fall in love eternally, not with himself, but with what he saw reflected. The young man looks into the pond (ill. 6, p. 206) and sees the reflection of a bed of roses which suddenly fills him with passion, and he turns to race to the marvellously fragrant

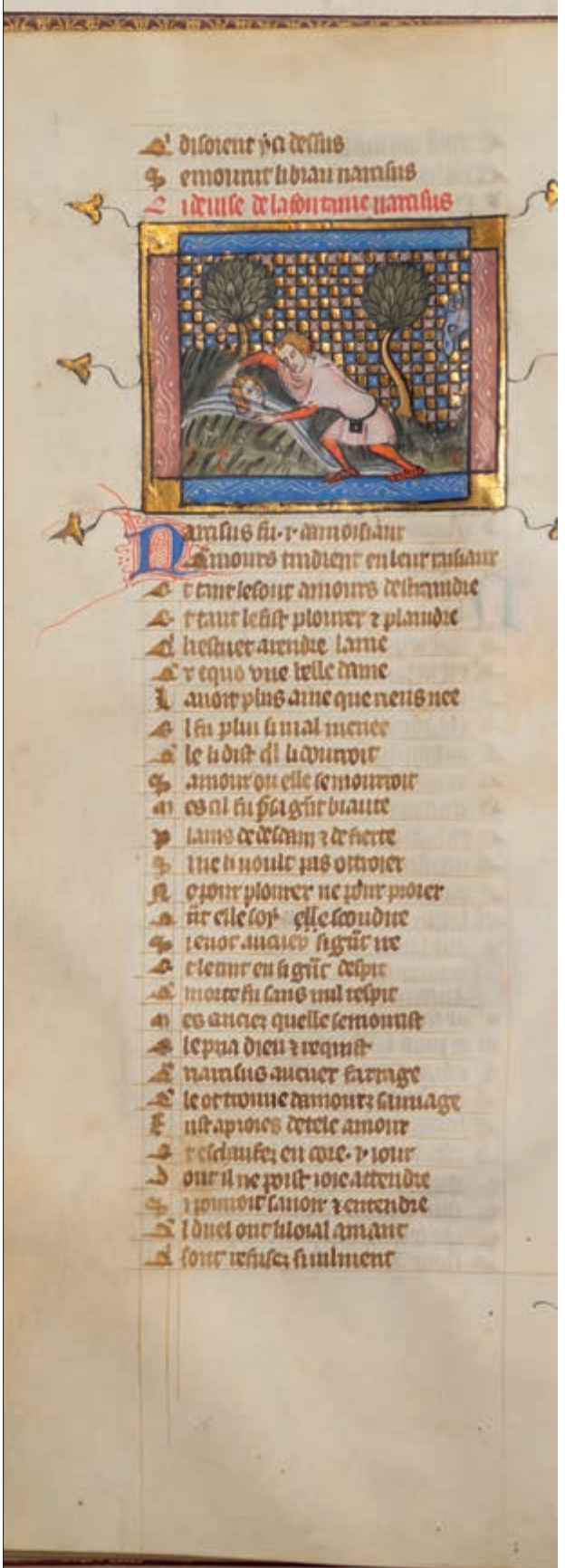
5.
Christine de Pizan, *L'Epistre d'Othea*, Auvergne (?), 1450-1475.
Dim. 199 x 134 (135 x 90) mm. The Hague, KB MS 74 G 27, fol. 83r. Apollo watches as Daphne turns into a laurel tree.

aide du souuerain plus puissant que aussi il aide le
mendre et en ce en quoy il est plus puissant de lui.
Pource dit le sauge es prouerbes. Qui pmus est ad
imam benedicetur proverbio xxvi° cap°



Texte

Se laquier contre moie auoy
Veulx si mieulx vault que autruy
Dame te conuient poursuir
Et tu lauras pour bien suiuir



6.
Roman de la rose. The Hague, MMW MS B 10 29, fol. 8v, detail. The young man mirrors himself in the pond of Narcissus.

bushes. Some of the buds are still small, others somewhat larger and still others are almost ready to bloom. He reflects that the flowers already in full bloom will fade quickly and consequently the closed buds attract him the most. The loveliest of all is the plumpest and most fragrant bud with a rosy blush, whose perfume fills the air around it. It stands proudly upright on a straight stalk with four pairs of leaves, each slightly overlapping. His greatest desire is to pluck it, but the sharp thorns, thistles and nettles hamper him.[26] At that moment, the *God of Love*, who has been following him, stops by a fig tree to take the first of his five arrows and shoot it into the young man's eye, from where it goes into his heart: 'Et trait a moi par tel devise / Que parmi l'oel m'a cors mise.'[27] The young man is overcome by pain and intense cold and falls to the ground in a swoon. When he recovers consciousness, he manages to pull out the arrow, groaning and lamenting, but the arrowhead remains lodged in his heart. He tries to reach his fragrant rosebud to find some comfort with her but before he can do so, the *God of Love* takes a second arrow, *Simplicity,* and also shoots this through his eye and into his heart. His pain and desire for his rosebud becomes almost insupportable but before he can take one step towards the object of his desire, another arrow, *Courtesy*, strikes him in the heart and he again falls to the ground in a faint, beneath an olive tree. When he comes around, weak and exhausted but with his love burning ever stronger, he desperately attempts to force his way through a hedge of thorns and thistles to approach his little rosebud. Another arrow, *Company*, brings him a new wound and so much pain that he wishes he were dead. Whereupon, the *God of Love* shoots his last arrow, *Fair Seeming*, with a tip dipped in an ointment which brings the narrator back to life.[28]

Now completely broken and with his heart racked with pain and desire at the same time, the young man has but one aim in life: to pluck and embrace the rosebud. Accordingly, he pledges his fealty to the *God of Love* and swears he will obey him in all things, as a vassal obeys his master, and bades him heal the wounds in his heart.[29] In the lessons on love that the *God of Love* then proceeds to outline, the aching pain of unfulfilled love is the essential element. These ordeals must even be sought out and borne with knightly self-control, steadfastness and dignity. But the *God of Love* assures the lover that his suffering will be relieved by the personifications *Pleasant Looks*, *Pleasant Conversation*, *Lady Hope* and *Sweet Thoughts*, who express the hope and belief that the lover will be freed from his torments through the consummation of his love.[30]

And torments there are. After *Fair Welcome* lets the young man through the hedge of thorns so that he can approach his rosebud and inhale her fragrance, he finds that she is not

7.
Roman de la rose. The Hague, MMW MS 10 B 29, fol. 9r, detail. The God of Love shoots at the young man with his arrow.



only protected by thistles and thorns but also encircled and guarded by *Danger*, *Chastity*, *Shame* and *Envy*. Still, with the help of *Fair Welcome*, the young lover succeeds in gaining an intimate moment with the rosebud. It has grown even redder and rounder than when he first saw it and the tip of the swelling bud is just beginning to open. However, the slight opening between the petals as yet gives no glimpse of the seeds in its heart. In sweet ecstasy but full of the searing pain of love, the young man falls to the ground before gathering his courage and asks *Fair Welcome* to pick the rosebud and give it to him. That request alarms *Fair Welcome* who makes it clear that such a wish is absolutely impossible. The rosebud is not yet open and if it were removed from the bush, it would be unable to grow and flower in full maturity. The young man hopes that he can at least kiss the little flower. When *Venus* herself intercedes, his request is granted and by the light of Venus's torch, the young lover is finally able to kiss the burgeoning rosebud, which fills him with its sweet odour of youth. *Evil Tongue* sees what has happened and immediately tells *Envy* who imprisons *Fair Welcome* and builds a fortified castle around the roses. This leaves the lover without hope and the reader in confusion, as this is where Guillaume's story ends.[31] As a result of the actions of the *God of Love*, the *Garden of Pleasure* is no longer just a paradise of sweetness and greenery and an invitation to sensuous pleasure, but also a place of torturous arrows, thorns and despair which, curiously enough, only increases the lover's burning desire.

The illustrations of the *God of Love* in the Meermanno manuscript do not show the flowers, birds and other animals adorning the *God of Love*'s clothing as described in the text. The hat of roses is also missing. Just as in virtually all other known manuscripts of the *Romance*, the god is represented with wings and wears a long robe and a crown, without any decorative elements. If we look more closely at fol. 9r, the miniature in which the *God of Love* shoots at the poor narrator, we can see that the representation follows the pictorial tradition (ill. 7, p. 237). The elaborate drama of this scene as described in the narrative is entirely absent and even the rose bush is missing in this miniature. The *God of Love* shoots one arrow directly into the eye of the young man who seems to look at the god somewhat questioningly. On fol. 10r we see how the *God of Love* and the young man embrace and kiss one another (ill. 8, p. 238). This kiss and its description in the *Romance* follow the conventions of the feudal oath of fealty: the young man bends down to kiss the *God of Love*'s foot, but he takes his hand, pulls him to his feet and tells the young man to kiss him on the lips: the kiss of fealty. Thus, holding hands and with a kiss on the lips, they became liege lord and

vassal.[32] This scene with the kiss is found frequently in the pictorial tradition of the *Romance.* On fol. 15r of the same codex we see the tragic end of Guillaume's tale. *Danger* chases away the distraught lover with his club. Behind *Danger* the rose bush is imprisoned, still bearing the rosebud for which the poor lover longs so sorely (ill. 9, p. 239).

The rose is conquered

Whether Guillaume had intended to end his story at this point and to deny the lover the object of his desire is a topic of continuing discussion. It can be argued that unattainable love forces the lover to display the virtuousness that is part of the ideal of courtly love and that consequently this must have been the intention. On the other hand, in contrast to the system of courtly love in which unswerving faithfulness to the unattainable lady is the basic principle, the lover has sworn fealty to the *God of Love*, not to the rosebud. Consequently, the sexual purity of the rose is not really an essential condition for the young man's education in chivalry. Whatever the case, whether Guillaume did or did not intend a continuation to his story, Jean de Meun chose to take up the tale and in his telling the rose is indeed plucked.

The eighteen thousand verses written by Jean are not as poetic as the original four thousand by Guillaume, and he did not restrict himself to the purely courtly and traditional narrative, and allegorical model. Jean must have had a kaleidoscopic interest in learned literature and new ideas, given the multitude of topics that he brings up and often sharply criticizes. Jean was also a compiler; his poem is to a great extent a mosaic of references and quotations.[33] Unfortunately for us, Jean says very little about the vegetation of the *Garden of Pleasure*, although he does later refer to a heavenly garden of paradise. We also hear more about the rose.

Jean starts up where Guillaume left off, with the suffering of the young lover and his longing for his rosebud that remained out of reach. The young man feels surrounded by evil. Even the things that first seemed so good and beautiful to him now seem bad. He curses the personifications of cheerful characteristics and their relativity. He speaks bitterly about the fleetingness of youth and curses the *God of Love* for the lamentable situation and condition in which he has been placed. But then he realizes that he has given himself over completely and forever to the *God of Love* and recognizes that there can be no wickedness in love.[34] The beautiful *Reason makes a* serious effort to persuade the young man to abandon his loyalty to the *God of Love* and follow his head and not his heart, but *Friend* comforts him and convinces him that he really needs to conquer *Envy* and free his darling rosebud.[35]

The proven loyalty of the young man to the *God of Love* moves him to come to the young man's aid and he brings forth a parade of the personifications of every imaginable virtue, his barons, to counsel the unfortunate young man. We encounter *Lady Idleness*, *Discretion*, *Boldness*, *Constancy*, *Pleasure*, *Company*, *Courtesy*, *Beauty*, *Patience*, *Humility*, *Gaiety*, *Pity*, *Wealth*, *Youth*, *Sincerity and Nobility of Heart*. Even *Constrained Abstinence* makes an appearance, along with *False*



8.
Roman de la rose. The Hague, MMW MS 10 B 29, fol. 10v, detail. The God of Love and the young man embrace each other and share a kiss of fealty.



9.
Roman de la rose. The Hague, MMW MS 10 B 29, fol. 15v, detail. *Danger* guards the rosebud.

Seeming, without whom *Constrained Abstinence* cannot exist, although they weren't invited.[36] *Generosity of Spirit* is the first to come forward to attack *Danger*, who is armed with a mace made of wood from the *Forest of Denial*. *Sincerity* finds herself in difficulty, but *Pity* comes to her aid, soaking *Danger* with her tears, which leaves him seriously weakened. *Shame* then appears and almost kills *Pity*. Fortunately, *Pleasure* comes between them, but she in turn is attacked by *Shame*, and saved just in time by *Discretion* who struck *Shame* down with his noiseless sword and shield made of *secret place.* The next warrior to appear is *Fear* who tries to cut *Discretion* to pieces. *Boldness* comes to his aid, followed by *Constancy*, and both attack *Fear*, but *Fear* overcomes both.[37] At this point the *God of Love* appeals to his mother, *Venus*, who joins the *God of Love* and the virtues in battle and seriously wounds *Chastity*.[38]

Nature is able to inspire the troops even further with a long discourse. It is her duty as ordained by God to see to the continuation of all the species on earth and she sounds the alarm because humans are abstaining from sexual intercourse, essential for procreation, the most important law of nature.[39] At her request, *Genius* steps forward. The *God of Love* appoints him immediately as bishop: 'Amor was pleased to clothe him in a chasuble and gave him a ring, a staff and a mitre, all of which are more shiny than crystal, so that he can preach and maintain the laws of nature.'[40] On fol. 94r of Meermanno's manuscript we see *Genius* in full clerical garb, with *Nature* kneeling at his feet, begging for his help (ill. 10, p. 241). *Genius* then gives a long sermon in which he explains Nature's point of view. He will excommunicate everyone who does not follow her precepts and to those who do, he promises entry to paradise: the garden of the Lamb where no animals are slaughtered and where the sun always shines. The *Garden of Pleasure* is nothing in comparison to the eternal truth of this paradise and the water from the pond of Narcissus is cloudy in comparison to the water of life from this fountain. He who obeys *Nature* may drink from this fountain of life and will never know thirst, sickness or death.[41] Unfortunately, *Genius* tells us nothing about the greenery that undoubtedly fills this paradise.

The sermon stirs the army greatly, and filled with renewed fanaticism, they storm the fortress of the rose bushes.[42] Venus sets the fortress on fire with her torch, whereupon the lover can enter and consummate his love for the rosebud.[43] It is almost impossible to read the description of the storming of the fortress and the plucking of the rose in any way except as a sexual conquest. Moreover, even with the purest mind in the world, the reader can no longer deny the association of the rose with the female sexual organ. After a comparison of

10. ▷
Roman de la rose. The Hague, MMW MS 10 B 29, fol. 94r. *Nature* begs *Genius* for help.

p. 244 ► ►
Book of hours in Dutch, Master of the Morgan Infancy Cycle, Utrecht or Delft (?), *c.* 1410-1420. Dim. 124 x 88 (70 x 46) mm. London, BL Add MS 50005, fol. 23r. Peapods wind through the page, one of the flowers ends up in the initial.

the lover's situation with that of *Pygmalion*, whose love for the statue he had created brought it to life, Jean describes a beautiful sculpture, with an embrasure and curtained relics exactly in the middle of the fortress, on top of two pillars. The young man kneels between the two pillars and parts the curtain to gaze at the relics on display. In highly eroticized language, the writer describes the attempts of the young man to thrust his staff into the narrow opening, though his scrip remains hanging outside. His scrip is made of a soft, seamless skin and contains two hammers given to him by *Nature* along with a sturdy staff. He notes that the passage is so narrow, that he thinks he is probably the first to ever enter there.[44] Once inside, the young man attempts to pick his beloved rosebud and make it his own, while *Fair Welcome* beseeches him to be gentle and not to cause any further damage to the rose bush. Although *Fair Welcome* had protested vigorously when the young man expressed his desire to pluck the young rosebud which was not yet open and would then never be able to reach full maturity and bloom, he now stays silent. The young lover grasps the twigs of the bush, without being pricked by the thorns, and shakes the rosebud gently. He does his best not to cause any damage but cannot capture his beloved rosebud without bruising the bark here and there. He rubs the bud all over and sprinkles it with some seeds. He then spreads the petals and probes the bud deep into its heart, where he mixes his seed with the seeds of the rosebud, making it swell. In view of the consequences predicted by *Fair Welcome* if the young man plucked the rosebud while it was still closed, this must have resulted in the prompt demise of the poor rosebud. Although *Fair Welcome* is glad for the young man, he also points out that he has gone too far and broken his promise. Nevertheless, the young man is full of happiness and thanks the *God of Love* and his mother, praying to God that all lovers may conquer in the end. At this point the narrator awakes and the *Romance of the Rose* comes to an end.[45]

Conclusion

In the *Romance of the Rose,* the *God of Love*, adorned in flowers, turns a heavenly garden replete with greenery, fruit, herbs and flowers, a veritable paradise, into a thorny garden full of torments. The same *God of Love* turns an exquisitely fragrant rose bush, the object of the narrator's desire, into a source of distress. An inspiring source of distress, it is true, for as we have said, the fiery passion for an unattainable object draws out numerous positive inner qualities in the poor victim who has been smitten by love. Seen in this light, the connection between the rose bush in the *Romance of the Rose* and the Virgin Mary which we made at the beginning of this chapter is not unjustified. Isn't she, the rose without thorns, the most fervently worshipped but ultimately unattainable woman?

However, less appropriately, the rose of Jean de Meun is conquered in the end. Based on the initial protests of *Fair Welcome*, we could even say 'murdered'. In addition, and equally preposterously, the works of both authors are frequently risqué and sometimes quite openly obscene. The dangers that accompany female seduction are evident throughout the work and the association of the rosebud with the female sexual organ is undeniable. If you had immediately associated the rose bush with Venus, you were also correct. Her rose is feminine seduction and sexuality. Her rose has thorns and causes the mixture of pain and pleasure that is described in the *Romance*.

Neither Guillaume nor Jean appears ever to consider sexuality as a sin, and in the second part of the narrative it is in fact the Christian God who is said to have dictated the sexual act. *Genius*, his episcopal servant, argues for obedience to God's laws of love and reproduction, and it is in this spirit that he encourages the liberation and conquest of the rosebud. He links it to eternal life in heaven and makes it very clear that the eternal afterlife cannot be attained by those who forego earthly pleasures and fail to partake of love in the fleeting moment of life on earth, in the pleasure garden filled with sensual greenery.



NOTES

[1] Guillaume de Lorris & Jean de Meun, *Roman de la Rose*. D. Poirion (ed.), Paris 1974. Both the Dutch translation *De roman van de roos*. E. van Altena, Baarn 1991, used for the Dutch version of this article, and the English translation *The Romance of the Rose*. F. Horgan, Oxford 2008, recommended here, are based on F. Lecoy (ed.), 3 vols. Paris 1965, 1966 and 1970. In both the Dutch and English versions of this article, the verse numbers of the more recent edition of Poirion are used. They vary to a certain extent from the aforementioned translations (in Paris, Bibliothèque Nationale MS 1573, on which Lecoy based his edition, a few dozen lines are missing). The names for characters and plants in the Dutch version of this article were based on the translation of Van Altena. Some parts of this article stem to a certain extent from my dissertation, E.M. Mulders, *'Omnia vincit amor'. Het antieke beeld van de aardse liefde in middeleeuws-encyclopedische context (ca.200 -ca.1300)*. [Dissertation, University of Amsterdam] 2013, which includes a chapter on the *Roman de la rose*.

[2] The question of whether or not the *Romance* can be interpreted in an entirely secular manner has been the subject of much discussion. Interpretations on purely theological lines are exemplified by the work of D. W. Robertson, 'The Doctrine of Charity in Mediaeval Literary Gardens: A Topical Approach through Symbolism and Allegory', in: *Speculum* 26 (1951), pp. 24-49; J. Fleming *The* Roman de la Rose: *A Study in Allegory and Iconography*. Princeton 1969; R. Tuve, *Allegorical Imagery: Some Mediaeval Books and their Posterity*. Princeton 1966. Given the tone and the topics of the *Romance*, I consider the work to be primarily secular, although at the same time I recognize that a medieval author's thinking about the topics of the *Romance of the Rose* could never have been completely uninfluenced by the idea of God and the history of salvation.

[3] See R.E.V. Stuip, 'De tuinen in de *Roman de la Rose.* Paradijs of tuin der lusten?' in: R.E.V. Stuip & C. Vellekoop (eds.), *Tuinen in de Middeleeuwen*. Hilversum 1992, pp. 143-151.

[4] Ovid, *Ars Amatoria.* R. Ewald (ed.), *BSGRT*, Leipzig 1907. English translation *The Art of Love*. R, Humphries, London, 1957 or the same title by S. Appelbaum, New York 2010.

[5] Andreas Capellanus, *On Love*. P.G. Walsh (edition with an English translation), London 1982.

[6] For more information on this ideal of love, I refer the reader to J. Bumke, *Höfische Kultur. Literatur und Gesellschaft im hohen Mittelalter*. Munich 1986; C.S. Jaeger, *Ennobling Love: In Search of a Lost Sensibility*. Philadelphia 1999; C.S. Jaeger, *The Envy of Angels: Cathedral Schools and Social Ideas in Medieval Europe, 950-1200*. Philadelphia 1994, pp. 311-319; H. Brinkman, *Entstehungsgeschichte des Minnesangs*. Halle 1926; C. S. Lewis, *The Allegory of Love: A Study in Medieval Tradition*. Oxford 1936; G. Duby, *Mâle Moyen Age. De l'amour et autres essais*. Paris 1988, G. Highet, *The Classical Tradition: Greek and Roman Influences on Western Literature*. Oxford 1951, p. 57; J. Huizinga, *Herfsttij der Middeleeuwn*. 1919, reprint Groningen 1984, pp. 103-112, first English translation *The Waning of the Middle Ages*. Harmondsworth 1924; new translation *The Autumn of the Middle Ages*. Chicago 1996.

[7] *La Clef d'Amors.* A. Doutrepont (ed.), Halle 1890.

[8] For biographical details on both authors, see K. A. Ott, *Der Rosenroman*. Darmstadt 1980, pp. 13-18; E. König, *Die Liebe im Zeichen der Rose*. Stuttgart 1992, pp. 8-11, U. T. Holmes, *History of Old French Literature*. New York, 1936, pp. 303-8.

[9] Guillaume de Lorris, op. cit. (n.1), vss. 1-4058

[10] Guillaume de Lorris, op. cit. (n.1), vss. 21 and 46.

[11] Jean de Meun, op. cit. (n.1), vs. 4059-21780. In vss. 10562-10564 the God of Love refers to the grave of Guillaume de Lorris and in vs. 10587-10590 to the fact that it is forty years later that Jean took up the story. In vs. 6637-6662 he refers to the conflicts between Manfred, King of Sicily and Charles of Anjou and of Charles's ultimate acquisition of the throne of the kingdom of Sicily-Naples in 1266. Jean does not mention that Sicily came into the hands of Peter III of Aragon in 1282. This makes it possible to place his work in the period around 1270 and that of Guillaume around 1230.

[12] A complete list of all known manuscripts and fragments can be found at *Roman de la Rose* Digital Library: http://romandelarose.org/. It is also possible to consult 130 manuscripts of the *Roman de la rose* on this site. Most of the more than 320 manuscripts and fragments of the *Roman de la rose* which have been preserved have been described and classified by Ernest Langlois in: E. Langlois, *Les Manuscrits du* Roman de la Rose: *Description et Classement*. Lille 1910. A year later, Alfred Kuhn described and analysed the illustrated copies known at the time and reconstructed the stemmata of the image cycles in: A. Kuhn, *Die Illustration des Rosenromans*. Freiburg 1911.

[13] For a nuanced vision of the 'querelle' and documents for this debate, see: D. Huot, *Debate of the Romance of the Rose*. Chicago 2010; C. McWebb, *Debating the Roman de la Rose: A Critical Anthology*. New York 2007 and Ott, op. cit. (n. 8), pp. 18-49. On Christine de Pizan, see: K. Brownlee, 'Discourses of the Self: Christine de Pizan and the *Romance of the Rose*', in: K. Browlee & S. Huot, *Rethinking the Romance of the Rose: Text, Image, Reception*. Philadelphia 1992, pp. 234-261. S. Huot, *The* Romance of the Rose *and its Medieval Readers: Interpretation, Reception, Manuscript Transmission*. Cambridge 1993, pp. 10-14 infers from the many variations of the *Romance* that the work must have had a diverse public. In some variants, for example, some of the obscene language is censored, whereas in other variants the erotic passages are expanded. There has been much discussion about the paradoxical figure of *False Seeming* since the very appearance of the *Romance of the Rose*. See on this topic T. Stinson, 'Illumination and Interpretation: The Depiction and Reception of *Faus Semblent* in *Roman de la Rose* Manuscripts', in: *Speculum* 87:2 (April 2012), pp. 469-498. The diversity of the public, combined with the fact that there are various versions of the *Romance* must have led to a great range of interpretations. See on this topic, Ott, op. cit. (n. 8); König, op. cit. (n. 8) and Huot, op. cit. (n. 13: 1993). On the many editions from the Renaissance see F. Bourdillon, *The Early Editions of the Romance* of the Rose. Geneva 1974. Did Jean intend to rewrite the Romance or did he want to finish it? Compare for example Fleming, op. cit. (n. 2); J. Fleming, *Reason and the Lover*. Princeton 1984; J. Fleming, 'Jean de Meun and the Ancient Poets', in: Brownlee & Huot, op. cit. (n. 13), pp. 81-100 and D. Gunn, *The Mirror of Love: A Reinterpretation of 'The Romance of the Rose'*. Lubbock 1951 on the one hand and Lewis, op. cit. (n. 6) on the other.
There is a great number of modern interpretations of the *Romance*. See for example König, op. cit. (n. 8); Huot, op. cit. (n. 13: 1993); Tuve, op. cit. (n. 2); Fleming, op. cit. (n. 2); Lewis, op. cit. (n. 6). Examples of various interesting points of view from which the *Romance* has been studied and adequate references can be found in C. Bel & H. Braet (eds.) *De la Rose, texte, image, fortune*. Leuven 2006, and in Brownlee & Huot, op. cit. (n. 13); S. Huot, *Dreams of Lovers and Lies of Poets: Poetry, Knowledge, and Desire in the 'Roman de la Rose'*. Oxford 2010; S. Conklin Akbari, *Seeing Through the Veil: Optical Theory and Medieval Allegory*. Toronto 2004; Poirion, op. cit. (n. 1); M. McMunn, 'In Love and War: Images of Warfare in the Illustrated Manuscripts of the *Roman de la Rose*', in: S. Ridyard (ed.), *Chivalry, Knighthood and War in the Middle Ages*. Sewanee 1999, Sewanee Mediaeval Studies 9, pp. 165-193. See also the bibliographical reference in n. 2. For a detailed survey of current scholarly interpretations and approaches, see: H. Arden, *The Roman de la Rose: An Annotated Bibliography*. New York 1993, pp. xviii-xxvii and pp. 61-264. See also for example Huot, op. cit. (n. 13: 2010), pp. 1-9; Brownlee & Huot, op. cit. (n. 13), pp. 1-18 and Ott, op. cit. (n. 8), pp. 1-12 and for nineteenth century references, pp. 46-88.

[14] The Hague, Royal Library MS 120 D 13. The Hague, Museum Meermanno/ House of the Book MS 10 B 29. Both codices can be consulted digitally along with bibliographical reference on the website of the Royal Library in The Hague at: manuscripts.kb.nl.

[15] Guillaume de Lorris, op. cit. (n.1), vss. 45-466.

[16] Guillaume de Lorris, op. cit. (n.1), vss. 476-603.

[17] Guillaume de Lorris, op. cit. (n.1), vss. 521-1284.

[18] Guillaume de Lorris, op. cit. (n.1), vss. 867-901.

[19] Guillaume de Lorris, op. cit. (n.1), vss. 902-903.

[20] Ovid, *Metamorphoses*, I, 468-474. English translation David Raeburn, Harmondsworth, 2014.

[21] Christine de Pizan, *L'Epistre d'Othea*. The Hague, Royal Library MS 74 G 27. The codex can be consulted digitally along with bibliographical references on the website of the Royal Library in The Hague: manuscripts.kb.nl.

[22] Guillaume de Lorris, op. cit. (n.1), vss. 904-977.

[23] Guillaume de Lorris, op. cit. (n.1), vss. 1280-1344.

[24] Guillaume de Lorris, op. cit. (n.1), vss. 1345-1420.
[25] Guillaume de Lorris, op. cit. (n.1), vss. 1420-1428.
[26] Guillaume de Lorris, op. cit. (n.1), vss. 1420-1680. On the importance of 'seeing' in the *Romance*, see Lewis, op. cit. (n. 6), p. 129 and Conklin Akbari, op. cit (n. 13), pp. 45-113. On 'seeing' and love, see A. Spearing, *The Medieval Poet as Voyeur: Looking and Listening in Medieval Love Narratives*. Cambridge 1993, and R. Kline 'Heart and Eyes', in: *Romance Philology* 25 (1972), pp. 263-297. See also of course 'Blind Cupid' in: E. Panofsky, *Iconology: Humanistic Themes in the Art of the Renaissance*. New York 1962, pp. 95-128. See also M. Camille, *The Medieval Art of Love: Objects and Subjects of Desire*. London 1998, pp. 27-49.
[27] Guillaume de Lorris, op. cit. (n.1), vss. 1680-1695.
[28] Guillaume de Lorris, op. cit. (n.1), vss. 1699-1880.
[29] Guillaume de Lorris, op. cit. (n.1), vss. 1285-2043.
[30] Guillaume de Lorris, op. cit. (n.1), vss. 2701-2748.
[31] Guillaume de Lorris, op. cit. (n.1), vss. 2920-4058.
[32] Guillaume de Lorris, op. cit. (n.1), vss. 1881-2044.
[33] On the literary sources of Jean de Meun, see Langlois, op. cit. (n. 12); Ott, op. cit. (n. 8), pp. 115-123 and the bib-liography in Arden, op. cit. (n. 13). On Jean de Meun's education and library, see Huot, op. cit. (n. 13: 2010), pp. 10-30. On Jean de Meun and classical literature, see Fleming, op. cit. (n. 13: 1992), pp. 81-100.
[34] Jean de Meun, op. cit. (n.1), vss. 4059-4190.
[35] Jean de Meun, op. cit. (n.1), vss. 4225-10439.
[36] Jean de Meun, op. cit. (n.1), vss. 10439-10493.
[37] Jean de Meun, op. cit. (n.1), vss. 15304-15629.
[38] Jean de Meun, op. cit. (n.1), vss. 15630-15890.
[39] Eros made such a complaint against his mother in the *epithalamium* based on Ennodius (473/74-521). In it, he blamed Christianity for the cold virginity that had taken hold of the world: Ennodius, *Carmina*, I, iv, vs. 1-52. W. Hartel (ed.), *CSEL* 6, Vienna 1882, pp. 507-539.
[40] Jean de Meun, op. cit. (n.1), vss. 19477-19480.
[41] Jean de Meun, op. cit. (n.1), vss. 19931-20701. Compare Alanus van Rijssel, *De Planctu Naturae*. M.N. Häring (ed.) 1978, pp. 806-879. For an interpretive comparison of the garden of paradise with the garden of *Sir Pleasure* in the *Romance of the Rose*, see Stuip, art. cit. (n. 3).
[42] Jean de Meun, op. cit. (n.1), vss. 20702-21250.
[43] Jean de Meun, op. cit. (n.1), vss. 21251-21328.
[44] Jean de Meun, op. cit. (n.1), vss. 21.248-21.672. *Natura* gave such hammers to Venus in the *De Planctu Naturae*. Van Rijssel, op. cit. (n. 41), prose 8, vs. 235.
[45] Jean de Meun, op. cit. (n.1), vss. 20813-21781.

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Die lauds verlikel. O ie hē
sal haer helpen met sinen aē
sichte. ēn in mids haer sel god
bliuen onbeweghet



Od wilt
dencken in
mijn hul
pe. Haer tot
nu te helpē
haeste ¶ lo
ie li den vader ēn den sone ēn
den heylighen gheest Hilet
was inden beghinne ēn nv ēn
altoes ēn ewelike sonder eynde Amen. Dominus regnat.

PART IV

PLANTS IN MEDIEVAL BOOK DECORATION



12

NAMING THE FLOWERS AND PLANTS IN THE MARGINS OF LATE MEDIEVAL MANUSCRIPTS*

Saskia van Bergen

7. ◂
Missal, southern Netherlands, mid-fourteenth century.
Dim. 368 x 265 (247 x 160) mm. The Hague, MMW MS 10 A 14, fol. 192v. Marginal decoration, historiated initial.

1.
Hieronymous, *Epistulae*, northern France/ southern Netherlands, mid-twelfth century.
Dim. 345 x 215 (270 x 160) mm. The Hague, KB MS 78 D 46, fol. 58r, detail. Zoomorphic initial.

2.
Psalter, Rhineland (Premonstratensian monastery), late twelfth-early thirteenth century.
Dim. 138 x 213 (96 x 168) mm. Baltimore, WAM MS W. 25, fol. 73r. Anthropomorphic initial.

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600*.
Amsterdam: Amsterdam University Press, 2022
doi 10.5117/9789463726191_ch12

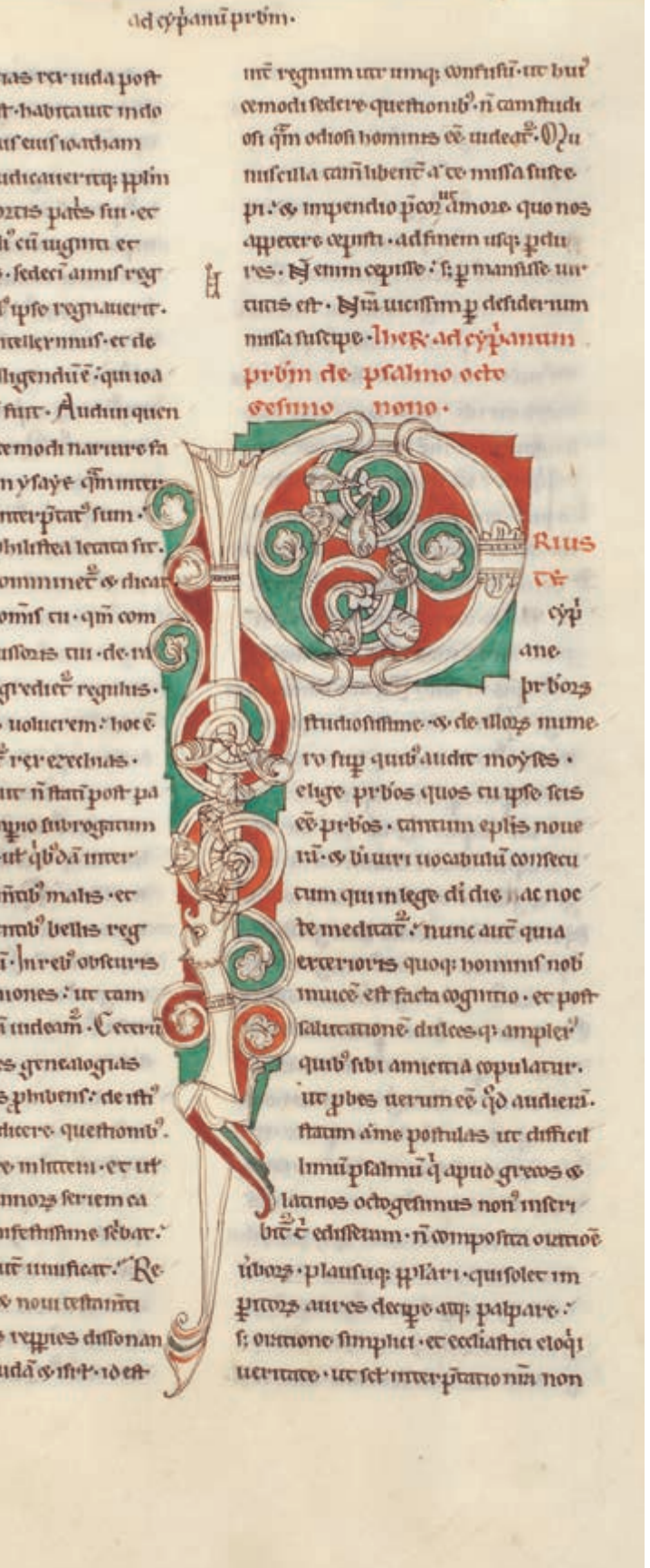
Abstract
Marginal decoration in manuscripts went through style changes and development over the centuries. In this chapter, these botanical motifs will be the starting point for a discussion on the evolution of style. I will deal in depth with the terminology and propose new nomenclature, focusing on the fourteenth and fifteenth centuries. There are several explanations for the limited diversity of plant motifs in the late middle ages. In the first place, not all flowers and plants are appropriate for marginal decorations. Secondly, patterns and visual examples were passed around all over Europe which influenced the repertoire of an illuminator. And, last but not least, it seems that marginal decoration was less sensitive to changes in taste than miniature art.

Keywords: Border decorations, terminology, botanical decorations, plant motifs, manuscript illumination

Botanical decorations are a fixed component of the embellishment of an illustrated late medieval manuscript. Open any manuscript at random and you will find an abundance of flowers and plants as twining branches and leaves fill the margins with a variety of flowers and fruits in every colour. The styles of these marginal decorations vary greatly. A Flemish manuscript has different decorations than an English or







3.
Hieronymous, *Epistulae*, The Hague, KB MS 78 D 46, fol. 76v, right column. Zoomorphic initial.

French manuscript, and there are also regional differences within a given country.[1] Just like miniature art, marginal decoration went through style changes and development over the centuries. In this chapter, these botanical motifs will be the starting point for a discussion on the evolution of the style in which they were depicted. I will deal in depth with the terminology and propose new nomenclature that could be used for plant motifs in marginal decorations. As frequently as possible, I will do so by referencing manuscripts in Dutch collections.

Botanical displays in early manuscripts

Initially, letters and margins were not decorated. There are only a few illustrated scrolls, bound books or codices that have been preserved from classical antiquity. None of these contains decoration outside of the text block.[2] It was the 'barbarian tribes', such as the Angles and the Celts, who applied their rich decorating tradition to a codex. After the fall of Rome, their missionaries distributed bibles and books for worship across the continent. They decorated these books with exuberant initials and carpet pages consisting of complex geometric patterns in a style that was derived from the art of goldsmithing.[3]

This type of decoration, whose origin is the two-dimensional surface and concentrates on the ornament, developed eventually into what is called the Romanesque style. The emphasis was on the illumination of the initial, which could have all manner of forms and variations. There are initials in the form of a human figure, anthropomorphic, for example, or an imaginary animal, zoomorphic (ill. 1). There are initials in which the open space inside a letter, also called the eye, is filled with the depiction of a narrative, known as a historiated initial.[4] Botanical components play a prominent role in historiated initials, among them acanthus leaves and grape vines, either with or without volutes. In initials from the eleventh and twelfth centuries, there are creatures in the eye of an initial that occasionally seem to do battle with the flowers and the plants that surround them (ill. 2).[5]

The botanical elements are often placed inside the eye of an initial, but they can also grow out of the extremities of the capital letter, as seen in the manuscript from the middle of the twelfth century mentioned above (ill. 3).[6] In these cases, the ends of the initials are stretched into the margins, or make their way between the lines of the text. Over the course of the thirteenth century, the ends of the initial were extended farther and farther and came to occupy a substantial share of the margins. In this type of decoration, they came to act as the demarcation between text blocks and between a text

4.
Bible, France (Paris?), second half thirteenth century.
114 x 81 (94 x 62) mm. The Hague, MMW MS 10 E 34, fol. 103v. Historiated initial.

5.
Bible, France (Paris?), second half thirteenth century.
Dim. 139 x 92 (96 x 61) mm. The Hague, MMW MS 10 E 36, fol. 559r. Historiated initial.

block and the margins.[7]

Two French Bibles from the second half of the thirteenth century (ills. 4 and 5) show that the offshoots emanating from initials started to look more like branches through the addition of side branches and leaves. The offshoots are placed next to the text and have the form of a staff to reinforce their role as a dividing line. Over time, so many branches and flowers sprouted from the ends of the staves that they filled more and more of the margins. In the early fourteenth century we see the same principle at work in a Flemish psalter (ill. 6), but the branches also start to look less tight, as they are more elaborately drawn. The extension of the initial is no longer directly under the text block, but has moved further down so that there is more room for the side branches and leaves. The advantage of this is that it creates a platform for all sorts of amusing and humorous additions known as drolleries, such as the addition of the deer in this example.

In a fourteenth-century missal from the Maasland area, a vine or branch grows out of the staff to take up three sides of the margin with here and there gold-coloured leaves (ill. 7, p. 246).[8] In the corners and in the centre of the margins, these gold-coloured parts of the staff grow into leaves with curling ends in red and blue. The staff itself is also covered with meandering branches and flowers. These lines, depicting





6.
Psalter, Flanders (Bruges?), first half fourteenth century.
Dim. 117 x 85 (71 x 53) mm. The Hague, KB MS 135 E 15, fol. 99r. Marginal decoration, historiated initial and drolleries.

8.
Book of hours, Utrecht, *c.* 1430.
Dim. 157 x 102 (93 x 53) mm. The Hague, KB MS 131 G 3, fol. 172r. Marginal decoration, historiated initial.

very fine branches and leaves, are called *rinceaux*. Although painted a century later, the decoration in the margin of an Utrecht book of hours from about 1430 (ill. 8) repeats this type of decoration.[9]

Structure and style in late medieval manuscripts

The structural elements of initial, staff and foliage determine the style of the decoration of a late medieval manuscript. The branches of foliage can sprout up at various places in the margin. Generally, they are attached to one or more of the ends of the staff. The Utrecht manuscript, referred to above, provides a good example of this (ill. 8). Sometimes the vines are not attached to anything, but simply float in the margins as a decorative frame around the text block or miniature. A Leiden book of hours with miniatures by the Master of Hugo Jansz. van Woerden demonstrates this in exemplary fashion (ill. 9).[10] The text, the historiated initial and the branches with leaves and flowers have become independent components on the page and are not attached to one another through a staff. The line work consists of one continuous stem with offshoots that emerge at the bottom from the inside margin.

The pattern of the lines, straight or curling, determines the appearance of the border decoration to a great extent. The line in the margins of the Leiden manuscript, referred to





9.
Book of hours, *c.* 1490-1500.
Dim. 196 x 130 (105 x 75) mm. The Hague, KB MS 135 E 12, fol. 43r. Marginal decoration, historiated initial.

10.
Book of hours, with several prayers in French, Bruges, *c.* 1420-1440.
Dim. 202 x 151 (124 x 74) mm. The Hague, KB MS 133 D 14, fols. 17v-18r. Opening with miniature and marginal decoration in two styles.

above, consists of a profusely curling vine with offshoots. This is comparable to the lines in the upper and lower margins of the Utrecht manuscript (ill. 8), but the lines of the outside margins of this manuscript are almost straight. The number of offshoots is another important criterion. In the manuscript we just referred to, there are almost no offshoots, whereas the earlier named manuscript has many offshoots that, in turn, have sprouted more branches. In addition, the shape of the end of a vine or branch may be either straight, such as those around the miniatures in a manuscript found in The Hague (ill. 10), or may end in a spiral (ill. 9). The final characteristic is whether or not the lines in the margins depict a single vine or a vine with offshoots. Most manuscripts have forking branches that sprout either from the middle of a frame around a miniature or from a *baguette* (staff) to encircle a text block. Both types are used in the





opening of this book of hours by the Utrecht master of Catherine of Cleves (ill. 11). The heavy lines around the text are decorated with single branches, whereas the lines in the margin around the miniature has forking branches.

An optional element is the corner element that can be placed in one or more corners of the margins. This can be a branch with flowers such as we see in the The Hague manuscript (ill. 10), or one or more acanthus leaves. Just like the lines, this corner element is usually attached to a staff, as in another manuscript from The Hague (ill. 11).

The branches and vines in the margins of manuscripts are generally decorated with a variety of leaves and flowers carried out in gold, with a pen or with finishing paint. The basis for this are the elements that have been applied in gold and black ink, of which we can distinguish different types. A flower bud with extruding filaments is the most common of these. This method is used in the inner and upper margins of the aforementioned manuscript from The Hague (ill. 11). A specific leaf could be used and may be found in manuscripts from the thirteenth century onwards. That leaf can be applied in gold, in colour or a combination of the two.[11] This is usually referred to as a grape leaf in art history.[12] Frequently, in medieval texts the term 'vignette' or grapevine is used, but these terms usually refer to marginal decoration in general.[13] If we compare various decorated margins, it quickly becomes clear that the leaves are not identical but are composed of a variety of different types. These can be very diverse as they may be in the shape of a hand, rounded or arrow-shaped, divided or undulating and with a pointed or round tip. At first glance, the leaves look like grape leaves, but they can also look like bryony (ill. 10) or ivy (ill. 8).[14] For these reasons, both Eberhard König and Christine Jakobi choose the term 'thorn leaf', the term we apply here.[15]



The leaf of the frequently occurring acanthus

With its thorny, curling leaf, the acanthus stands apart. Its name is derived from the Greek word *ákanthos*, meaning thorn or prickle. The acanthus leaf as an artistic form dates back to Greek architectural ornamentation, where it was used on capitals topping pillars.[16] Acanthus leaves are frequently found in Roman and medieval art in various disciplines.[17] In the opinion of Jakobi, the word *Akanthus* (in German) should be restricted to 'naturalististic' representations, and more stylized forms should be called *Palmet,* but the term acanthus leaf is commonly used for the many variations of this ornamentation found in illuminated manuscripts. Although the acanthus leaf is found in early and high medieval manuscripts, it gained an increasingly dominant position in marginal decoration in the late Middle Ages and almost completely replaced the thorn leaf in the course of the fifteenth century. In the late fifteenth-century Flemish book of hours shown here (ill. 12), the decoration in the margin consists almost entirely of acanthus leaves, complemented by a few flowers and fruits.[18] The ultimate effect is achieved in the opening miniature of a sumptuous French manuscript from the early fifteenth century (ill. 13), in which the acanthus leaves completely fill the margins.[19]

As we briefly discussed earlier, the Master of Catherine of Cleves used the acanthus leaf as marginal decoration for the corner piece in the manuscript pages shown here (ill. 11). In each case, the front of a leaf has a different colour than the back, and the illuminator also combined finishing paint with gold. The lighter and darker parts of the leaf are executed by using two tints of the same colour and white shading is added to give some areas an extra highlight. A decorative effect is achieved by spiralling the acanthus leaves and having their ends curl, a technique which allows for endless variations. We know that sample books existed to help an illuminator with the painting of such acanthus leaves, the most well-









11. ◁
Book of hours, Utrecht, 1438.
Dim. 147 x 107 (79 x 54) mm. The Hague, MMW MS 10 E 1, fols 13v-14r. Opening with miniature and marginal decoration in two styles.

12.
Book of hours, southern Netherlands, c. 1480-1490.
75 x 55 (40 x 28) mm. The Hague, MMW MS 10 F 12, fols. 81v-82r. Opening with miniature and marginal decoration in one style.

15. ◁
Playing card with five roses. Master of the Playing Cards, Germany 1435-1455.
Dim. 952 x 698 mm. Boston, MFA 1981.80.

14.
Model book, Germany, c. 1450.
Dim. 155 x 105 mm. Göttingen, NSU MS 8° Cod. Uff. 51 Cim. Model book with instructions for the painting of acanthus leaves.



known of which is the Göttingen Model Book. Step by step it explains how to compose a spiralling acanthus leaf in various colour combinations (ill. 14).[20]

Naming margin elements: observation of nature or invention?
Gold-coloured motifs and acanthus leaves are not the only elements found in the margins of late medieval manuscripts. We also find a wide variety of coloured leaves, flowers, plants and fruits. These are depicted in various stages of development and from different positions as we encounter flower buds, an opening flower, or one in full bloom viewed from above or from the side. Frederic Lyna mentions the most common flowers in Flemish manuscripts as the carnation, rose, sweet pea, cornflower, columbine, common daisy and oxeye daisy.[21] In his opinion, Flemish illuminators increasingly sought to achieve a naturalistic representation of plants and flowers.[22] Unfortunately, he fails to specify which details enabled him to recognize the various plants and flowers and in which manuscripts he encountered them. Although there have been a number of studies on marginal decoration in medieval manuscripts since then, specific terminology has only occasionally been offered. An exception is the study by Anne Margreet As-Vijvers on marginal decorations in Flemish manuscripts from around 1500.[23] Here she concentrates on flowers and plants that were used in marginal decoration as independent motifs. These motifs were very detailed and seemingly realistically depicted. The result is known as the 'Ghent-Bruges strewn borders', because they look as if someone has randomly strewn flowers over the page (see also



Cy commence le premier liure de au
relie augustin de la ire de dieu con
tre les paiens Et puis estre pris pour
vn autre vsaige ce chapitre.

on treschier filz
maurilin en este
cuure que iay co
mence a faire pa
lamour de toy. Et
la quelle ie tieng
quelle est deue. I
pource que ie le my
prouue. Jay entrepris a defendre la
religieuse ire de dieu contre ceulx
qui mettent leurs pbles au deuant
du createur dycelle ire. Soit en cours
de cest temps pñr. Quant celluy qui vit
en vraye foy faict son pelerinage en
este vie mortele entre les mescreans.
Ou en la fermete du siege pardurable
que il attent par patience iusques a ce
que iustice soit conuertie en iugement.
Et que celle fermete soit acquise par
excellence en la victoire derrenier en
pur parfaire. Car grant cuure
est humaine mais dieu est en nre ayde.
Car ie say bien quelz forces il conuent
a demonstrer aux orgueilleux cõbien

13. ◁
Augustine, *La Cité de Dieu*, vol. I, Paris, *c.* 1410. Dim. 423 x 330 (259 x 179) mm. The Hague, KB MS 72 A 22, fol. 6r. Marginal decoration with acanthus leaves.

16.
Book of hours, North/South-Holland, *c.* 1490-1500. Dim. 167 x 125 (99 x 73) mm. The Hague, KB MS 79 K 6, fol. 12r. Marginal decoration with pea pods.

Chapter 14 in this book, p. 288).

In 2002, Kathleen Scott published the useful handbook *Dated and Datable English Manuscript Borders c. 1395-1499,* that is devoted to terminology but only regarding English manuscripts.[24] The codicological terminology published by Denis Muzerelle in the 1980s is applicable to manuscripts from all areas. This practical list was specifically intended for the description of books and, consequently, contains relatively little information on art historical aspects.[25] There are two other reference books that focus on book illumination. Jakobi's *Buchmalerei, Ihre Terminologie in der Kunstgeschichte* ('Illumination Terminology in Art History') is primarily a description of various flower and plant forms.[26] Her study does not seek to identify floral motifs, although in some cases the forms may coincide with existing flowers and plants such as, for example, the *Kleeblatt* or cloverleaf. *Ornament in Medieval Manuscripts: A Glossary* by Lucia Valentine offers a brief list of flowers and plants 'according to nature', along with illustrations.[27] For a large number of other botanical elements, however, she only describes the forms without making connections to real flowers and plants. Among these we find various motifs that are identifiable such as the leaf she calls 'heart shaped' and that is identical to the small-leafed linden.[28] On the other hand, she sometimes names flowers with a broad designation such as 'aroids', while all flowers from the geranium family share the same characteristics.[29]



The appearance of the exhibition catalogue *Kriezels, aubergines en takkenbossen* that may be translated as 'Bits, Eggplants and Bundles of Twigs', compiled in 1992 under the direction of Anne Korteweg, represented a step forward for Dutch terminology regarding marginal decorations in northern Dutch manuscripts.[30] It discusses, in depth, both pen and ink and painted decorations, primarily as an aid for localization and dating. It makes frequent references to botanical terms, discussing such things as eggplants, radishes, adoxa and trumpet flowers. There is, however, no scholarly basis for the terms used and they are more a sort of visual mnemonic device that took on a life of its own.[31]

That leads us to wonder if it is possible to establish a scholarly basis for the use of the correct botanical names for marginal decorations. First of all, it is important to remember that most of the flowers and plants that are found in the margins of manuscripts were not painted from real-life observation but by copying models. As a consequence, the characteristic plant features are lost and even botanists cannot identify all of the plants and flowers depicted. It was not the goal of the illuminators to make illustrations that were true to nature but, rather, to make the margins as attractive as possible. They combined characteristics of very different flowers and plants, stylizing and schematising the forms. They did not consider the actual size of the specimens and they changed the colours to make them harmonize with the other elements. Flowers from different seasons bloom together and different types of flowers and fruits grow on the same stem.[32]

How, then, do we explain the Ghent-Bruges strewn borders that give the illusion of naturalism with their profusion of detail? According to As-Vijvers, the flowers and plants in

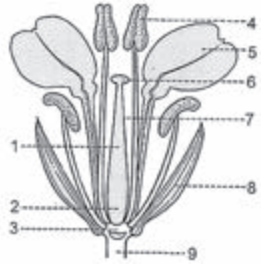
17.
Book of hours of Catherine of Cleves, Guelders (?), c. 1440.
Dim. 192 x 130 (105 x 62) mm. New York, PML MS M. 945, fol. 11r. Marginal decoration with pea pods.

some Ghent-Bruges manuscripts were, indeed, based on direct observation of nature.[33] In these cases, there is a great deal of variation in the motifs used and the whole plant is depicted, including stems and leaves. Later manuscripts again relied primarily on models, in which the decorative aspect was more important than the recognisability of the plant. In most cases a true botanical determination is not possible.

A proposal for botany-based nomenclature

Botany can still offer a source as a reasoned system of nomenclature for the flowers and plants found in the margins. At the end of this chapter, there is a list of the most common plants and flowers in northern and southern Netherlandish miniature art. The names have been borrowed from the botanically identifiable elements of modern-day flora.[34] This is not intended to lead to exact identifications of the plants and flowers in the margins, but primarily as an aid to structuring a system of naming. As we mentioned, colour plays a secondary role, but there are a number of elements that can be used to assign names to botanical motifs as may be seen below.

- The pistil (7) consists of an ovary (2), style (1) and stigma (6) and can have varying forms and lengths.
- The receptacle (3), which is attached to the stem (9), can be flat, or concave in form.
- The petals have an infinite variety of forms, colours and sizes (5). They occur as separate structures or, partially, fused and together they can form a star, a bell, a spout, a trumpet, bowl or chalice.
- Sepals (8) are generally green, but can also have other colours. They can be small and unobtrusive, but sometimes so long as to protrude beyond the petals.
- Finally, stamens (4) too can be either long or short with every possible variation in between.



If we examine the botanical elements from this point of view, we can distinguish four categories:

- The motifs with distinguishing characteristics that indicate the depiction of a specific plant.
- The motifs whose most important distinguishing characteristics cannot be attributed to a specific real-life plant but do indicate a family, or a number of genera – for example, thistles – or classes. Examples are decorations in which the leaf, flower and stem are all different, or in which plant components are stylized.
- The elements that suggest an existing group – generally a genus – but are not distinct enough to be attributable unequivocally to that group. Since the intention is not to make a botanically precise interpretation, but to provide a means to make distinctions, they can be included in the group. For example, this means that flowers with four petals may be placed in the category of the mustard family.
- Imaginary flowers and fruits that have no representative characteristics and cannot be associated with any type, family or genus. Examples are flowers with whimsical forms and long, labiate petals, and with a variety of components that are superimposed or combined in some way.

It is certainly not true that illuminators only chose motifs for margin or manuscript decoration from just one of these four categories, or that a distinction can be made between illuminators who used only decorations based on real-life plant forms, and those who used only imaginary plants. On the contrary, components from all four categories are found in varying combinations.

The flowers and plants that belong to the first category are relatively easy to identify as an existing type. The more specific the characteristics of a flower or plant, the closer to nature its depiction appears to be. Some flowers are so universally recognisable that illuminators do not even vary their natural colour. As an example, this is the case for the wild columbine, whose petals are almost always dark blue or purple. In the Leiden book of hours mentioned above, there are two specimens painted in the left-hand top corner, one with an unopened bud and the other in full bloom (ill. 9). The pointed leaves on the stems are not true to life, since the columbine has round leaves in the form of a hand. This margin has



Deus in adiutorium meum i
tende. Domine ad adiuuandu
me festina. Gloria patri et fi
lio et spiritui sancto. Sicut e
rat in principio et nunc et se
per: et in secula seculoy Amen.
Dominus regnauit ps.
decorem indutus est:

other identifiable motifs. The strawberry in the top margin is very easy to recognize, even without its characteristic toothed leaves with deep veins. The illuminator chose to depict the leaves of the strawberry in the outside margin, next to a number of red peonies that are portrayed in different stages of blooming. The striking stamens in the heart of the peonies are rendered in gold paint to which shading has been added. The artist who decorated this manuscript may have made use of visual aids. Around the middle of the fifteenth century in southern Germany, an artist known as the Master of the Playing Cards produced printed cards bearing similar peonies depicted from different sides (ill. 15).[35] It is known that these cards, which bore pictures of flowers or a variety of human figures and animals, were spread far and wide and were used as models for book illumination.[36]

In the outside margin of the same page, two red carnations are also depicted (ill. 9), recognisable from their deeply toothed petals. The carnation in the top margin, however, has clearly discernible stamens, which is not the case in real life. The other features are not so easy to identify. They contain too few details to enable us to connect them to any existing type. The pink and blue flowers in the lower and top margins have a few characteristics that are typical for the peony, such as the prominent stamens, the saucer-like shape of the flower and the round petals. Given those details, it is possible to add them to the genus *Paeonia*. In a similar manner, the flowers and plants in the text margins of the manuscript in The Hague (ill. 10) will be assigned to a related genus or general family. The two flowers with the protruding red ovaries in the upper and lower margins, for example, may be grouped in the *Geraniaceae* family. All sorts of other small flowers, scattered by the illuminator in the margins, have different numbers of coloured petals with gold sepals between them of uniform length, which is characteristic of flowers in the rose family.

The red flowers in the upper left margin are more difficult to identify. They offer too few precise details to assign them to one specific family. The same holds true for the green blob near the bottom of the outside margin that looks like a green, open mouth. It is tempting to see this as a Venus fly trap, but they did not exist in Europe in the Middle Ages.[37] Consequently, we must conclude that it is an imaginary flower. In many manuscripts there are a few flowers of which only the seedpod is depicted. In the two manuscripts just mentioned (ill. 10 and 12), for example, the seedpods are shown as large, pink balls with at the top a circle of pores from which the seeds are emitted. In the margins of the first manuscript (ill. 10) we do find a few identifiable flowers and plants. Even though somewhat abstracted, the blue flower with the deeply toothed petals can only be a cornflower. And in the inside left margin, there is a branch with daisies. These can be recognized by their white, elongated petals, the ends of which are frequently of a pinkish red colour.

In a northern Netherlandish book of hours found in The Hague we come across an unusual composition in which we find peapods in the middle of acanthus leaves and pansies

18.
Book of hours, Flanders, *c.* 1450. Dim. 180 x 128 (98 x 63) mm. The Hague, MMW MS 10 E 2, fol. 179r. Marginal decoration with acanthus leaves and fantastic flowers.

(ill. 16). However, peas are found in other manuscripts as well, perhaps because their elongated form is quite suitable for filling in the outside margins.[38] Moreover, the pea often has not just a white flower, but a pinkish red one which provides a decorative effect in combination with the green pods. The Master of Catherine of Cleves used peas in the marginal decoration in at least two manuscripts, one of which is the renowned book of hours from which he derived his name (ill. 17).[39] In this manuscript, the pods have opened, showing the peas inside. Their golden colour provides an additional decorative effect.

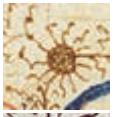
The flowers and plants in the fourth category consist of too many imaginary elements to link them to any existing variety or family. They often have complex structures and a great number of variants, in which elements from different families and genera are combined and even overlap. The resulting depiction can be quite bizarre as a result. A Flemish book of hours provides an excellent example of this (ill. 18). The illuminator has combined real and imaginary flowers with acanthus leaves to make wild creations. The decoration in the lower left-hand corner of the opening page, for example, is made up of two flowers with prominent, pointed ovaries and long curling petals. The green branch on which they are placed runs downwards and turns into a broader, blue branch where two acanthus leaves fan out. We find the long pointed ovary also in the lower right-hand corner of the opening page. In that case, the ovary is combined with acanthus leaves that grow on a branch with acanthus leaves and a pink flower from the mustard family.

Although we have taken examples from different regions, it is clear that the diversity of plant motifs was limited in the fifteenth century. There may be reasons for that. Not all flowers and plants are appropriate for marginal decorations. According to As-Vijvers, yellow flowers, for example are not frequently used because they do not combine well with the colour gold or with parchment.[40] As we have also noted, illuminators made use of patterns and visual examples that were passed around all over Europe. These would certainly have had an influence on the repertoire of an illuminator. At the same time, it seems that marginal decoration was less sensitive to changes in taste than miniature art, with the result that patterns continued to be used for a longer time. Until now, research on marginal decorations has lagged behind research on miniatures. Before we can draw definitive conclusions about the development of marginal decorations in Europe, further research will be required into this underappreciated form of decoration.

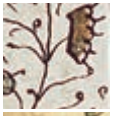

Hier beghint die .lxxxvi. me deus
Ac ic myden
heeden dus.
Hebbe verslaet
myn ionghe
lauen vader
dat wilt my
vergheuen.
Na dure groote ontfarmicheit.
Sie op my vader hoe es mu leet.
Dat mu mer leet ghenoech en si.
Dat ic mesdaen hebbeghen di.
Rechter als een worm vā grote onvre
Hooghe ic myn aenschyn tot eerde
Jc en weet wel dat ic myn oghen.
Di sonde sonder tranen toghen.
Doch biede ic di myn hande beede.
Helpt mu myn vader dat vā mu scheede

COLOURED MOTIFS

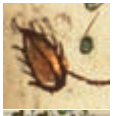
GOLDEN MOTIFS



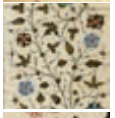
Avens
Preston, New atlas (familia/genus) 335–336.
The Hague, KB MS 135 G 9, fol. 14v.



Convex petal with stamens
The Hague, KB MMW MS 10 E 2, fol. 45v.



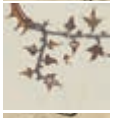
Flower bud, with hairs
The Hague, KB MS 131 G 3, fol. 172r.



Thorn Leaf
Collective name for ivy, vine leaf and bryony, used interchangeably.
The Hague, KB MS 133 A 2, fol. 17r.



Bryony
https://www.brc.ac.uk/plantatlas/plant/bryonia-dioica
The Hague, KB MS 133 A 2, fol. 17r.

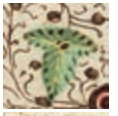


Common Ivy
Jakobi, p. 69; https://www.brc.ac.uk/plantatlas/plant/hedera-helix-subsp-helix
The Hague, MMW MS 10 D 1, fol. 170r.

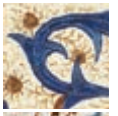


Seed box
The Hague, KB MS 133 A 2, fol. 17r.

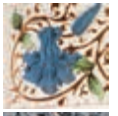
1. LEAF FORMS



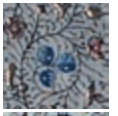
Strawberry
Valentine, p. 88; Preston, New atlas (familia/genus) 333-334.
The Hague, KB MS 133 D 14, fol. 45v.



Acanthus
Preston, New atlas (familia/genus) 580; Jakobi, p. 68; Valentine, p. 86.
The Hague, KB MS 135 G 9, fol. 14v.



Columbine
Preston, New atlas (familia/genus) 111.
The Hague, KB MS 135 E 12, fol. 43r.

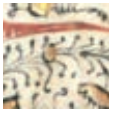


Alder, leaf of the
https://www.brc.ac.uk/plantatlas/plant/alnus-cordata
Oxford, BL Can. Lit. 17



Small-leaved Lime
https://www.brc.ac.uk/plantatlas/plant/tilia-cordata
Oxford, BL Can. Lit. 17

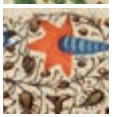
2. FLOWERS



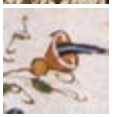
Balsam (family)
Preston, New atlas (familia/genus) 452-453.
Heukels, pp. 252-253
London, VAM 45.



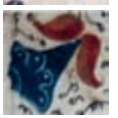
Geranium (family)
Type 1 combined with Crucifer (family)
Preston, New atlas (familia/genus) 443-451.
Heukels, pp. 240-243
The Hague, KB MS 135 G 12, fol. 47r.



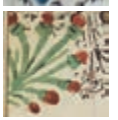
Geranium (family)
Type 1 combined with Crucifer (family)
Preston, New atlas (familia/genus) 443-451.
The Hague, KB MS 133 D 14, fol. 45v.



Geranium (family)
Type 2 combined with Morning-glory (family)
Preston, New atlas (familia/genus) 443-451.
Heukels, pp. 240-243
Bassano del Grappa, MC 1564.



Figwort (family)
Preston, New atlas (familia/genus) 539-75.
Heimans, p. 871
London, VAM Reid 45.



Colt's-foot
https://www.brc.ac.uk/plantatlas/plant/tussilago-farfara
The Hague, MMW MS 10 F 11, fol. 66v.



Bellflower (family)
Preston, New atlas (familia/genus) 583-589;
Heimans, p. 401-405; Heukels, p. 963-971.
Oxford, BL Can. Lit. 17.



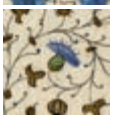
Knapweed
Preston, New atlas (familia/genus) 617.
The Hague, MMW MS 10 F 15, fol. 67v.



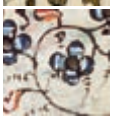
Campion, *with incised petals*
Preston, New atlas (familia/genus) 176-177.
The Hague, MMW MS 10 F 50, fol. 150r.



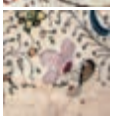
Cornflower, *with receptacle, top view*
Preston, New atlas (familia/genus) 616; https://
www.brc.ac.uk/plantatlas/plant/centaurea-cyanus
The Hague, KB MS 133 D 14, fol. 45v.



Cornflower, *with receptacle, side view*
Preston, New atlas (familia/genus) 616; https://
www.brc.ac.uk/plantatlas/plant/centaurea-cyanus
The Hague, KB MS 133 A 2, fol. 17r.



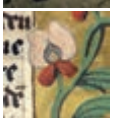
Crucifer (family), *with receptacle, top view*
Preston, New atlas (familia/genus) 249-285.
The Hague, KB MS 135 E 36, fol. 96r.



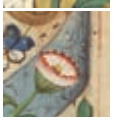
Crucifer, *side view*
Preston, New atlas (familia/genus) 249-285.
London, VAM Reid 45.



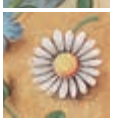
Crucifer, *side view*
Preston, New atlas (familia/genus) 249-285.
London, VAM Reid 45.



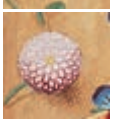
Vetchling, *front view (in this case a pea)*
Preston, New atlas (familia/genus) 385-388.
The Hague, KB MS 79 K 6, fol. 12r.



Daisy, *side view*
Preston, New atlas (familia/genus) 643.
The Hague, KB MS 76 G 8, fol. 114r.



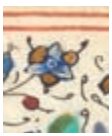
Daisy
Preston, New atlas (familia/genus) 643.
The Hague, MMW MS 10 F 14, fol. 28v.



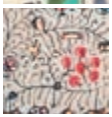
Daisy (double)
Preston, New atlas (familia/genus) 643.
The Hague, MMW MS 10 F 14, fol. 28v.



Peony
Preston, New atlas (familia/genus) 209.
The Hague, KB MS 135 E 12, fol. 43r.



Rose (family)
Type 1, three petals and gold-coloured sepals
Preston, New atlas (familia/genus) 321-372.
The Hague, MMW MS 10 E 2, fol. 179r.



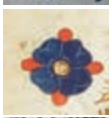
Umbellifer (family)
Preston, New atlas (familia/genus) 454-478.
Liverpool, NMWAG 12009.



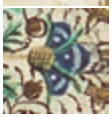
Spurrey, *top view with long pointed sepals*
Preston, New atlas (familia/genus) 172-173.
The Hague, MMW MS 10 F 1, fols. 142v-143r.



Spurrey, *top view with long pointed sepals*
Preston, New atlas (familia/genus) 172-173.
Oxford, BL Can. Lit. 17.



Spurrey, *top view with rounded sepals*
Preston, New atlas (familia/genus) 172-173.
The Hague, KB MS 77 L 58, fols. 85v-86r.



Spurrey, *side view with open flower bud*
Preston, New atlas (familia/genus) 172-173.
The Hague, KB MS 10 C 2, fol. 1r.

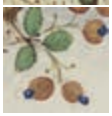


Violet, *top view*
Preston, New atlas (familia/genus) 224-229.
The Hague, KB MS 79 K 6, fol. 12r.

3. VRUCHTEN



Strawberry
Preston, New atlas (familia/genus) 333-334.
The Hague, KB MS 10 F 5, fols. 91v-92r.



Berry
Heukels, pp. 308-309.
The Hague, MMW MS 10 F 50, fol. 150r.



Acorn
Preston, New atlas (familia/genus) 130-132.
The Hague, MMW MS 10 C 2, fol. 1r.

NOTES

* An earlier version of this article was published as appendix 11 to my dissertation *De Meesters van Otto van Moerdrecht. Stijl en iconografie van een groep miniaturisten, in relatie tot de productie van getijdenboeken in Brugge rond 1430*. (*'The Masters of Otto van Moerdrecht: Style and Iconography of a Group of Miniaturists, in Relationship to the Production of Books of Hours in Bruges around 1430'*) [Dissertation, University of Amsterdam] 2007. I received help for the earlier version from the biologist Louis Kouwets and from Ceridwen Lloyd, Head of the Manuscripts unit, Special Collections, National Library of Wales, Aberystwyth. For this version, I would like to thank Sam Segal for his comments.

[1] For a survey of the developments in illumination, see for example O. Pächt, *Book Illumination in the Middle Ages: An Introduction*. Oxford 1986

[2] See C. Nordenfalk, *Die Spätantiken Sierbuchstaben*. Stockholm 1970.

[3] See C. Nordenfalk, *Celtic and Anglo-Saxon Painting: Book Illumination in the British Isles 600-800*. New York 1976.

[4] The Hague, KB MS 78 D 46, fol. 58r. Hieronymus, Letters, mid-thirteenth century. On anthropomorphic and zoomorphic initials, see for example J.J.G. Alexander, *The Decorated Letter*. New York 1978.

[5] Baltimore, Walters Art Museum MS W. 25, fol. 73r. Psalter, late twelfth or beginning of the thirteenth century.

[6] The Hague, KB MS 78 D 46, fol. 76v. Hieronymus, Letters, mid-thirteenth century.

[7] On figures in the margins of medieval manuscripts, see M. Camille, *Image on the Edge: The Margins of Medieval Art*. London 1992; E. Moore Hunt, *Illuminating the Borders of Northern French and Flemish Manuscripts, 1270-1310*. New York/ London 2006.

[8] The Hague, MMW/ House of the Book MS 10 A 14, fol. 192v. Missal, mid-fourteenth century.

[9] The Hague, KB MS 131 G 3, fol. 172r. Book of Hours, ca. 1430.

[10] The Hague, KB MS 135 E 12, fol. 43r. Book of Hours, ca. 1490-1500.

[11] C. Jakobi, *Buchmalerei. Ihre Terminologie in der Kunstgeschichte.* Berlin 1991, p. 24.

[12] F. Lyna, 'De randversiering in de Vlaamse verluchte manuscripts tijdens het gotisch tijdvak', in: *Tijdspiegel* 14 (1959), p. 75.

[13] Alexander, op. cit (n. 4), appendix 1, p. 180: 'Et fera dites heures douze ystoires à vignettes.' J.D. Farquhar, 'The Manuscript as a Book', in: S. Hindman & J.D. Farquhar, *Pen to Press: Illustrated Manuscripts and Printed Books in the First Century of Printing*. College Park 1977, p. 77: 'For viii hole vynets, p'se y vynet xii d.'

[14] See the appendix to this article for a survey of patterns. Friedrich Gorissen distinguished almost thirty variants in the Book of Hours of Catherine of Cleves, many of which were invented. See F. Gorissen, *Das Stundenbuch der Katharina von Kleve. Analyse und Kommentar*. Berlin 1973.

[15] Jakobi, op. cit. (n. 11), p. 69; E. König, *Französische Buchmalerei um 1450. Der Jouvenel-Maler, der Maler des Genfer Boccaccio und die Anfänge Jean Fouquets*. Berlin 1982, p. 150.

[16] See the survey of motifs in the appendix. E.J. Haslinghuis & H. Janse, *Bouwkundige termen: verklarend woordenboek van de westerse architectuur- en bouwhistorie*. 3e geheel opnieuw bew. en verm. dr. Leiden 1997, p. 17.

[17] A further distinction can be made between the Acanthus mollis and the Acanthus spinosus. The latter is much more spiny in shape, but both are also known as hogweed. In Western Europe the giant hogweed, or Heracleum mantegazzianum, has been around since the nineteenth century. See *Online Atlas of the British and Irish Flora* https://www.brc.ac.uk/plantatlas/plant/heracleum-mantegazzianum (visited january 2020).

[18] The Hague, MMW MS 10 F 12, fols. 81v-82r. Book of Hours, *c.* 1460-1480.

[19] The Hague, KB MS 72 A 22 fol. 6r. Augustine, *La Cité de Dieu*.

[20] Göttingen, Niedersächsische Staats- und Universitätsbibliothek MS 8° Cod. Uff. 51 Cim. See H. Lehmann-Haupt, *The Göttingen Model Book: A Facsimile Edition and Translations of a Fifteenth-century Illuminator's Manual*. Columbia 1972. For a digital facsimile see: http://www.gutenbergdigital.de/gudi/eframes/mubu/mubufset.htm (16-12-14).

[21] Although the *Bellis perennis* (common daisy) and the *Leucanthemum vulgare* are officially two different types of flowers, it is difficult for the non-specialist to see the difference. In French both are called 'marguerite'. In the appendix to this article 'daisy' is therefore used to denote both types.

[22] Lyna, art. cit. (n. 12), p. 77.

[23] A.M.W. As-Vijvers, *Re-making the Margin: The Master of the David Scenes and Flemish Manuscript Painting around 1500*. Turnhout 2013, pp. 165-169.

[24] K.L. Scott, *Dated and Datable English Manuscript Borders, c. 1395-1499*. London 2002.

[25] Denis Muzerelle, *Vocabulaire codicologique. Répertoire méthodique des termes français relatifs aux manuscrits*. Paris 1985. For terms in other languages, see http://vocabulaire.irht.cnrs.fr/ (version 1.1, 2002-2003).

[26] Jakobi, op. cit. (n. 11).

[27] L.N. Valentine, *Ornament in Medieval Manuscripts: A Glossary*. London 1965, pp. 86-89.

[28] Valentine, op. cit. (n. 27), p. 33.

[29] Valentine, op. cit. (n. 27), p. 27.

[30] A.S. Korteweg (ed.), *Kriezels, aubergines en takkenbossen. Randversiering in Noordnederlandse handschriften uit de vijftiende eeuw*. [Exhib.cat. The Hague, Rijksmuseum Meermanno and Royal Library]. Zutphen 1992.

[31] The terminology stems from the working groups that were directed by Peter Gumbert starting in the 1970s.

[32] This is not just the case for botany. The painting of insects in marginal decorations was done in the same way. A good example is the book of hours of Engelbert of Nassau (Oxford, Bodleian Library, MS Douce 219-220) in which two illuminators were responsible for the butterflies. One of the painters depicted actual specimens, the other non-existent, imaginary butterflies. G.I. Lieftinck, *Boekverluchters uit de omgeving van Maria van Bourgondië c. 1475-1485*, vol. 1. Brussels 1969, pp. 72 ff. With thanks to Jos Biemans for the reference.

[33] As-Vijvers, op. cit. (n. 23), p. 165. See also T. DaCosta Kaufmann & V. Roehrig Kaufmann, 'The Sanctification of Nature: Observations on the Origins of trompe l'oeil in Netherlandish Book Painting of the Fifteenth and Sixteenth Centuries', in: *The J. Paul Getty Museum Journal* 19 (1991), pp. 43-64.

[34] This overview is based on the Dutch flora E.J. Weeda, R. Westra, C.H. Westra & T. Westra, *Nederlandse oecologische Flora. Wilde planten en hun relaties*. 5 vols. Hilversum en Haarlem 1985-1994. To facilitate identification, the wild plants are illustrated with detailed watercolours. For the appendix I also used Preston's *New Atlas of the British & Irish Flora*: an atlas of the vascular plants of Britain, Ireland, the Isle of Man and the Channel Islands from 2002. Most information from this source can nowadays be found on the Online atlas of the British and Irish flora, illustrated with photographs: https://www.brc.ac.uk/plantatlas/

[35] Boston, Museum of Fine Arts, 1981.80 (Five roses).

[36] Van Buren and Edmunds have demonstrated that these playing cards were widely distributed and were used by manuscript illuminators as models. A.H. van Buren & S. Edmunds, 'Playing Cards and Manuscripts: Some Widely Disseminated Fifteenth Century Model Sheets', in: *The Art Bulletin* 56 (1974), pp. 12-30.

[37] The Venus flytrap belongs to the genus sundew. Weeda et al., op. cit. (n. 17), vol. 1, pp. 271-275. See also the page on the Venus flytrap on the website of the *Botanical Society of America*: http://www.botany.org/Carnivorous_Plants/venus_flytrap.php (16.12.14).

[38] As-Vijvers, op. cit. (n. 23), pp. 166-167. An early example of a manuscript that uses pods as a decorative motif is London, BL Add MS 50005, fol. 23 by the Master of the Morgan Infancy Cycle. See the illustration on p 212.

[39] New York, Pierpont Morgan Library MS M. 945. http://www.themorgan.org/collection/Hours-of-Catherine-of-Cleves (16.12.14).

[40] As-Vijvers, op. cit. (n. 23), p. 166.

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recht and the relation to the production of books of hours from early fifteenth-century Bruges. She works as project manager for the Special Collections department of the Leiden University Libraries. She publishes in the field of digitization and medieval book illumination.

13

FLOWERING MARGINS
THE DEVELOPMENT OF STREWN-FLOWER BORDERS IN SOUTHERN NETHERLANDISH MANUSCRIPT ILLUMINATION



In nomine requiem aues.
Et sic in sion firmata sui
Quasi cedrus exaltata
[illegible]

Missus est gabriel-
angelus a deo in
ciuitatem galilee cui no
men nazareth ad uirginē
desponsatam uiro cui no
men erat ioseph de domo
dauid: et nomen uirginis
maria Et ingressus an
gelus ad eam dixit Ave
gratia plena dominus t·

Anne Margreet W. As-Vijvers

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600*.
Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_CH13

Abstract
Known today as 'Ghent-Bruges strewn borders', the margins of southern Netherlandish manuscripts contain painted flowers that look as if they have been freshly picked and scattered across the margins. This chapter sketches the developments in fifteenth-century marginal decoration, miniatures and page layout, which together led to the creation of these *trompe-l'oeil* borders in the first half of the 1470s. Illuminators explored the play of light and shadow; they experimented with naturalistic representations in colour as well as monochrome grisaille techniques. Although the interplay between reality and illusion was a recurring theme in all types of Flemish borders, flowers continued to dominate the margins of manuscripts until the first decades of the sixteenth century.

Keywords: manuscript illumination, marginal decoration, representation of nature, history of botanical illustration, trompe-l'oeil

As early as the thirteenth century, illuminators painted floral motifs in the open spaces around texts and illustrations in order to enhance the decorative aspect of a medieval book. At first the flowers and plants they painted or drew were stylized, but gradually more easily recognisable specimens emerged in the margins (see also the chapter by Van Bergen, p. 246).[1] Around 1470 in the southern Netherlands, manuscripts appeared with a new type of marginal decoration, known today as the 'Ghent-Bruges strewn border'. The name 'strewn border' refers to the painted flowers that look as though they have just been picked and scattered across the margins (ill. 1).[2] *The trompe-l'oeil* effect is reinforced by the subtly painted shadows. The background is also painted in colour which makes the flowers stand out and separates the three-dimensional border decoration from the two-dimensional text area, and from the undecorated edges. In the past, southern Netherlandish miniature painting was dismissed as the last gasp of manuscript illumination in the late fifteenth and early sixteenth century, when it succumbed to the tension between the three-dimensionality of the miniatures and the two-dimensionality of the pages. Later on, this period has been evaluated as a triumph of illusionism, in which the marginal decoration proved itself a full-fledged counterpart to the miniatures. The parallel developments in miniature painting and marginal decoration did not compete with one another; quite the contrary, they reinforced each other. In both domains we find the same fascination for depicting such elements as the incidence of light, the resulting shadows, the texture and colour, all of which contribute to the illusionistic result. Owing to these newer insights, the question of who invented the strewn-flower border, previously attributed to the miniaturist referred to as the Vienna Master of Mary of Burgundy, has become less important. Strewn flowers did not just spring to life out of nowhere.[3]

The use of illusionistic effects was not limited to flowers. There are butterflies and flies that appear to have landed on the blossoms and snails and caterpillars crawl among them. Birds are also included, although they are usually more or less the same size as the flowers; unrealistically small in other words. Architectural frames make some miniatures resemble altarpieces. Other architectural elements suggest an element of reality in fanciful decors that could perhaps exist in real life, or not. Objects such as pilgrim's staffs, jewels, costly textiles and letters made of precious metals are also depicted in the margins, sometimes on their own and sometimes combined with flowers. Monkeys and other drollery creatures stroll among the flowers and plants.[4] These elements do undermine the naturalistic effect of the scattered flowers to a certain extent, but the discrepancy between the size of the flowers and the creatures underlines the interplay between reality and fantasy. In other words, if we look at the naturalistic flower and plant world in Ghent-Bruges marginal decoration in this manner, we see that the strewn borders are not all that far removed from the thirteenth- and fourteenth-century margins, with their worlds of fanciful creatures in which nothing is as it seems. This chapter will give a general sketch of the developments in fifteenth-century marginal decoration that eventually evolved into the *trompe-l'oeil* strewn borders, with references to manuscripts found in Dutch collections as much as possible.[5]

The depiction of plants and flowers in the first half of the fifteenth century

In the period after 1400, when the tendency towards naturalism in art took a giant leap, we find examples of plants painted true to life in Italian manuscripts, in particular in Lombardy by Michelino da Besozzo (active *c.* 1388; d. after 1450)[6] and north of the Alps by the Limbourg Brothers in their *Très Riches Heures du Duc de Berry* (*c.* 1411/1412-1416).[7] In the southern Netherlands, the style known as 'pre-Eyckian realism' is found particularly in the miniatures, much less so in the margins.[8] In the northern Netherlands we find some dar-

1. ◄
Book of hours, 'Principal Associate' of Simon Bening, Bruges (?), *c.* 1510-1520.
Dim. 144 x 102 (71 x 45) mm. Utrecht, MCC ABM h11, fol. 133r. Part of the Office of Advent with strewn border.

2.
Book of hours, Masters of Zweder of Culemborg, Utrecht, *c.* 1430-1435.
Dim. 116 x 84 (68 x 43) mm. The Hague, KB MS 79 K 2, p. 257. Suffrage to St. Barbara, historiated initial with her father Dioscuros.

3.
Book of hours, Master of Guillebert de Mets (Jan Ramont), Ghent (?), *c.* 1440-1445.
Dim. 194 x 140 mm. Los Angeles, JPGM 84.ML.67 (MS 2), fol. 127v.
Penitential psalms with miniature of the Last Judgment.

ing experiments by the Master of the Morgan Infancy Cycle around 1415-1420,[9] followed shortly after by the Masters of Zweder van Culemborg, who depicted hazelnuts, gooseberries and borage in a book of hours in the collection of the Koninklijke Bibliotheek, the National Library of the Netherlands (ill. 2),[10] as well as March violets in a book of hours and prayer book kept in Rotterdam, both from around 1430.[11] Towards 1440, the Master of Catherine of Cleves painted columbines, peapods, butterflies, mussels and all sorts of other objects in the margins of the book of hours he illuminated for Duchess Catherine of Cleves.[12] The shading applied by the painter make the peas gleam like golden pearls in their pods, a reference to the treasure in St. Anne's womb, her daughter Mary (ill. 17, p. 259).[13] In the same period we find strikingly large flowers in the work of the southern Netherlandish Master of Guillebert de Mets, that, despite their stylized presentation, belie a great interest in naturalism in the detail of the coloured petals (ill. 3).[14] The Master of Guillebert de Mets can probably be identified as Jan Ramont. Barthélemy d'Eyck, who was working in Provence, included naturalistic depictions of flowers and animals in the margins of a luxuriously illustrated but unfinished book of hours from around 1440-1450.[15] In less ambitious manuscripts from both the Netherlands and France in this period we also find small flowers between the *rinceaux* of the marginal decoration, many of which already show an astounding level of verisimilitude.

Coloured frames in the first half of the fifteenth century
Precursors to the gold coloured background of the





Ghent-Bruges strewn borders also date from the period around 1400. Gold leaf had been in use for centuries for the backgrounds of miniatures. In Lombardy, the Master of the Modena Hours (Tomasino da Vimercate) and Michelino da Besozzo placed the new naturalistic flowers not only in the margins, but also scattered them on the golden background of their miniatures.[16] For centuries, miniatures had been enclosed in gold leaf bars or frames, and similar frames were also used to delineate the written space from the decorations which fanned out loosely into the margins. These gold leaf borders or frames are often quite wide and filled with leaves and flowers. In an elaborate manuscript illuminated around 1400 by Tomasino we find a gold frame decorated with alternating red and blue roses (ill. 4).[17] Despite the occasionally unnatural colours and stylized appearance of the flowers, the form of the leaves reveals a certain amount of actual observation of nature, as they are depicted in groups of five, or sometimes three, on a stem, just as they grow naturally. In a number of early fifteenth-century southern Netherlandish and French manuscripts, including the *Belles Heures du Duc de Berry* (*c.* 1405-1408/9), curving acanthus leaves on a gold or coloured background take up the entire width of the border decoration.[18] In the same period the Master of the Morgan Infancy Cycle combined brightly coloured acanthus leaves with small flowers that appear to be true to nature.[19] We find simpler gold frames filled with stylized leaves or flowers after 1400 almost everywhere in the northern and southern Netherlands and also in France. The floral forms used in these frames gradually become more naturalistic, as did the small flowers between the *rinceaux* in the marginal decoration around them. A southern Netherlandish example of this is a psalter from the group of the Masters of the Gold Scrolls from around 1430-1440, in which the small flowers are still captured in geometric patterns (ill. 5),[20] but in a Parisian book of hours from about 1440-1450, they look as true to life as the flowers in the surrounding margin (ill. 6).[21]

Margins 'without' colour

After the middle of the fifteenth century, the golden frame becomes narrower, making it a less prominent element of the page, and the surrounding foliate work gains the visual upper hand. An innovative exception to this trend is the wide, gold-coloured frame around the famous frontispiece miniature of *The Virgin and Child* by Jean Fouquet of Tours, in the Hours of



4. ◁
Book of hours, Master of the Modena Hours (Tomasino da Vimercate), Lombardy, late fourteenth-early fifteenth century.
Dim. 212 x 163 (89 x 67) mm. The Hague, KB MS 76 F 6, fols. 13v-14r. Hours of the Virgin with the Annunciation and other scenes from Mary's life.

5.
Psalter, Masters of the Gold Scrolls, probably Bruges, *c.* 1430-1440.
Dim. 206 x 155 (135 x 89) mm. The Hague, KB MS 76 F 28, fol. 63r. Psalm 38 (39), historiated initial with king David as traveller.

6.
Book of hours, Master of the Hours of Thomas Hoo (follower of the Bedford Master), Paris *c.* 1440-1450.
Dim. 204 x 143 (110 x 70) mm. The Hague, KB MS 76 F 22, fol. 56r. Sext of the Hours of the Virgin, miniature with the annunciation to the shepherds.

Simon de Varie from 1455 (ill. 7).[22] The border decoration is made up of straight branches crossed by perpendicular branches, all of them bound together with painted ties. The squares created by the branches contain symmetrically arranged flowers, clearly identifiable as columbines. The columbine, associated with Mary, must have had an emblematic importance for the patron requesting the book, because columbines appear on all of the pages in which either Simon de Varie himself or his coat of arms is depicted.[23] The three-dimensional effect of the overall image is reinforced by the fact that the baby Jesus, secure in the loving attention of his mother, places his hand on the edge of the frame to look inquisitively at the viewer.

The book block of the Hours of Simon de Varie includes another new development in its use of margins 'without colour' (ill. 7). The codex was illuminated by two Parisian illuminators, the Master of Dunois and the Master of Jean Rolin II. The miniatures and borders are executed in a limited number of hues, among which a milky white pigment predominates. Such 'little white books' (*petits livres blanches*) were very much in vogue in the middle of the fifteenth century among the French elite.[24] The white leaves and flowers are rendered in shades of blue, red and gold, giving them volume and setting them off against the creamy white colour of the parchment folia.





7.
Hours of Simon de Varie, Jean Fouquet, Tours, *c.* 1455 and Master of Jean Rolin II, Paris, 1455.
Dim. 116 x 85 (57 x 36) mm. The Hague, KB MS 74 G 37a, fols. 1v-2r. Miniature of the Virgin and Child, facing the suffrage to St. Peter, miniature with the calling of Peter.

8. ▷
Hours of Philip the Good, Jean de Tavernier, Oudenaarde, *c.* 1450-1460.
Dim. 268 x 187 (165 x 110) mm. The Hague, KB MS 76 F 2, fol. 143v. None of the Hours of the Virgin, miniature with the adoration of the Magi.

In the same period in the southern Netherlands we see a similar interest in grey and white hues for miniatures and marginal decorations. This technique of building a picture primarily out of tones of grey is called 'grisaille' and can be achieved in a number of ways. Quite frequently, grey and white were combined with small touches of green and blue, and sometimes red.[25] Grisaille was used a great deal in the southern Netherlands in the third quarter of the fifteenth century, and reached a very high level in the work of illuminators like Jean de Tavernier, as can be seen in the Hours of Duke Philip the Good from around 1450-1460 (ill. 8).[26] Other prominent illuminators, among them Willem Vrelant and the Master of the Dresden Prayer Book, also produced monochrome manuscripts. Sometimes only the miniatures were in grisaille, sometimes only the margins, sometimes both. An example of this is a book of hours from circa 1470-1475 with miniatures by the Master of the Dresden Prayer Book and historiated initials in Vrelant style (ill. 9).[27] Although there are some greens in the miniature, the historiated initial as well as the borders are completely in grey, blue, gold and white. The marginal decoration stands out clearly from the underlying, white parchment. In the 1460s, we also see experimentation with black-dyed parchment. In such 'black manuscripts' the text is written in silver and the miniature and border dec-





Heure de nonne

Deus in adiutorium me
um intende Dñe ad ad
uuuandum me festina
Gloria patri Sanct
Em creator spiritus mentes
tuorum visita imple superna

orations are carried out in gold, silver and a limited number of colours.[28]

The transition to strewn borders

Around 1470, in various regions at the same time, coloured backgrounds appeared behind the marginal decorations. In the northern Netherlands, the Master of the Boston City of God experimented with a combination of gold frames and traditional borders, in which naturalistic walnuts and flies are depicted in the tradition of the Master of Catherine of Cleves. One example is the painted shadow of the fly that falls on the rotting fruit on which it just landed (ill. 11, lower margin).[29] In a French book of hours from Savoy, *c.* 1465-1470, a great number of borders have coloured backgrounds that are filled with plants. Although the plants are stylized, the way they are rendered reveals the illuminator's interest in the twining growth habit of their stems. A miniature of the Circumcision of Christ is framed predominantly by branch work and several types of flowers growing out of the same stem (ill. 10). In the Hours of the Virgin, the foliate branches contain half-length figures of the ancestors of Christ, spreading out in a tree of Jesse, an appropriate extra illustration for a border surrounding the Annunciation. Around the miniature of the Resurrection of Lazarus, part of the Office of the Dead, we see how Death wriggles through the vines to summon people from all classes and walks of life. The foliate work in the margins creates a structure that is used for additional, related images.[30]

Coloured backgrounds were also used in the southern Netherlands around 1470. A manuscript that includes the *City of God* by Augustine, presumably from about 1465-1478 and produced in Bruges for the nobleman Wolfert VI of Borssele, shows branches with acanthus leaves, alternating with fruit and flowering plants, on a coloured background (ill. 12).[31] The plants cast no shadows, however, and their stems consist of thin red lines. Just as in the French manuscript, there is no difference in spatial use in comparison to marginal decoration without a coloured background. It would seem that the coloured background was not in itself essential for the development of the *trompe-l'oeil* effect.

In contrast, the interest in grisaille seems to have played a crucial role in the development of what would become the Ghent-Bruges strewn border. The experimentation with coloured backgrounds in the southern Netherlands stemmed from the use of grisaille and the aesthetic effects that could be



9. ◁
Book of hours, Master of the Dresden Prayer book (miniature) and Dresden Follower of Willem Vrelant (historiated initial), Bruges *c.* 1470-1475.
Dim. 134 x 94 (71 x 50) mm. The Hague, MMW MS 10 F 1, fols. 13v-14r. Hours of the Cross, miniature with the Crucifixion and historiated initial with two angels holding a reliquary with a relic of the cross.

10.
Book of hours, Follower of the Master of the Prince of Piedmont, Savoy, *c.* 1465-1470.
Dim. 189 x 145 (105 x 72) mm. The Hague, KB MS 76 G 14, fol. 57r. None of the Hours of the Virgin, miniature with the circumcision of Jesus.

11.
Book of hours, Master of the Boston City of God, Utrecht (?), *c.* 1470.
Dim. 170 x 135 (100 x 72) mm. The Hague, KB MS 131 G 4, fol. 69v. Vespers of the Hours of the Virgin, miniature with the Deposition.

achieved with monochrome hues. The challenge was to bring out decorative elements against a dark or similarly coloured background. Ultimately, the interplay of dark and light hues and the search for *ton-sur-ton* combinations led to the creation of illusionistic effects on the coloured grounds.

The Prayer Book of Charles the Bold in the Getty Museum, illuminated by Lieven van Lathem and the Vienna Master of Mary of Burgundy between 1469 and 1471, contains a number of such *ton-sur-ton* borders, some of which seem to be inspired by costly textiles.[32] The other margins with dark backgrounds are filled with foliate work consisting of acanthus leaves, drolleries and other marginal images. They include hardly any flowers and they are not rendered in *trompe-l'oeil*. About half of the four-sided borders in Charles the Bold's prayer book are of the traditional type with acanthus leaves in gold and blue, between which are placed small, identifiable flowers. The same holds for two other manuscripts that Lieven van Lathem illuminated around 1470-1475 in collaboration with the Vienna Master of Mary of Burgundy and Simon Marmion, namely the Hours of Mary of Burgundy, in Vienna, and the Trivulzio Hours, kept in The Hague (ill. 13).[33] Alongside traditional representations, however, all three manuscripts include more naturalistic flowers as well. In addition, white and other light-coloured flower heads, such as strawberry and pea flowers, as well as some heartseases or wild pansies, are given a bit of grey shading so that they stand out better against the white parchment. The two subtle strawberry blossoms in ill. 13 are rendered in a similar manner.[34] Just as in the borders on dark coloured grounds, it is a *ton-sur-ton rendering*, in this case white flowers on almost white parchment.

In the same period as these three famous manuscripts, the







Incipit liber primus aurelii
augustini ippomensis epi doc
toris egregii de ciuitate dei ℣

Gloriosis
simam
ciuitatē
dei siue
in hoc tē
porum
cursu ci
miter im
pios pe
regrinatur ex fide viuens · siue in
illa stabilitate sedis etne quā nunc
expectat per patientiam quo ad
iustificetur iustitia conuertatur in iudi
cium · demceps adeptura per eternā
victoriam pacem ultima et pace p
fecta · hoc opus ad te instituto et
mea promissione debito · defendē
aduersus eos qui conditori eius
deos suos preferunt · fili carissime
marcelline suscepi · gratiam opus
et arduum · si deus adiutor nō est ·
flam suis quibusdam opus sit ut p
suadeatur superbis quanta sit mi
tue humilitatis · qua fit ut omia ter
rena maxima temporali mobili
tate mutancia non humano usur
pata fastu · si diuina quā donata
celsitudo transcendat · Rex enī et
conditor ciuitatis hui? de qua loq?
instituimus · in scriptura populi
sui sententiā diuine legis aperit

12. ◁
Augustine, *De civitate Dei*, Master of the Bruges *Genealogia deorum*, Bruges, *c.* 1465-1478.
Dim. 440 x 330 (318 x 205-210) mm. Utrecht, UB MS 42, fol. 1v. Book 1: miniature with Augustine showing the heavenly city of God.

13.
Trivulzio Hours, Lieven van Lathem (miniature) and workshop (marginal decoration), Ghent and Antwerp, *c.* 1470.
Dim. 130 x 90 mm. The Hague, KB MS 1900 A 009 (formerly SMC 1), fol. 76v. Hours of the Seven Days of the Week, Hours of the Sacrament for Thursday, miniature with the Host in a monstrance.

14.
Hours of Jean de Carpentin II, Master of the Dresden Prayer book, Bruges, *c.* 1470-1475.
Dim. 145 x 105 (75 x 50) mm. Private collection, fol. 17v. Matins of the Hours of the Virgin, miniature with the Annunciation.





Master of the Dresden Prayer Book illuminated a number of books of hours in which the effects of a dark background and grisaille technique were taken to the extreme.[35] In a book of hours illuminated for Jean de Carpentin II (d. 1501), a member of Picardian nobility and for a time in service of Charles the Bold, we find borders that borrow from both the monochrome margins of black-dyed manuscripts and from the busily filled margins of Lieven van Lathem (ills. 14, 15 and 16).[36] The backgrounds are primarily black or grey, but other colours are also used: blue, green, red, pink and gold-coloured hues. At the same time, almost imperceptibly, carefully observed and reproduced plants appear against the dark backgrounds. These flowering plants are executed either in monochrome or in colour, but in both cases the forms of the flowers' petals and leaves are precisely rendered.[37] Most of the flowers grow on branches with acanthus leaves, but here and there a few independent flower heads also crop up. At the beginning of Terce of the Hours of the Passion, the acanthus is almost completely supplanted by flowers (ill. 15). This border shows a selection of blue flowers on a pink background. In addition to such types as March violets, borage and forget-me-nots that are blue or bluish purple by nature, in the upper right corner we find unnatural blue carnations.[38] Some of the flower heads cast a shadow. Grape vines grow around Prime of the Hours of the Virgin against a gold-coloured ground.[39] The Carpentin Hours also contains one of the earliest examples of a *trompe-l'oeil* text: the *incipit* of Matins is completely integrated in the painting by suggesting that it is written on a banderole (ill. 14).

A few years later, the Dresden master illuminated a book of hours for the noblewoman Charlotte of Bourbon-Montpensier. She was a cousin of Isabella of Bourbon, the mother of Mary of Burgundy. In 1468 Charlotte married the above-men-





15.
Hours of Jean de Carpentin II, Private collection, fol. 154r. Terce of the Hours of the Passion, historiated initial with the Flagellation.

16.
Hours of Jean de Carpentin II, Private collection, fol. 150r. Prime of the Hours of the Passion, historiated initial with the Crowning of Thorns and marginal decoration with a repenting Peter, because the rooster had crowed thrice.

tioned Wolfert VI of Borssele, who was inducted in 1478 to the Order of the Golden Fleece.[40] Charlotte's book of hours contains many references to both herself and her husband, allowing us to infer the date of its production to be between 1474 and the beginning of 1477. This makes it the earliest datable manuscript with *trompe-l'oeil* borders. There are two types of *trompe-l'oeil* borders in Charlotte's book of hours. The first, which I call a 'flower-and-acanthus border', evolved logically from the marginal decoration in the Carpentin book of hours (ill. 17). The branches with acanthus leaves are less dense, and the flowers between them are larger and stand out clearly against the contrasting colour of the background. No complete plants grow out of the branches here but, rather, individual flowers of various kinds and colours are found. These include roses, columbines, single- and double-headed daisies, several types of violets, speedwell and periwinkles. Both the acanthus and the flowers throw shadows on the yellow-gold underground. A butterfly has alighted on one of the roses.[41] The second type are strewn-flower borders in the strict sense of the term, floral borders with short stemmed flowers that appear to lie independently on the coloured parchment (ill. 18).[42] The strewn-flower border illustrated here contains heartseases, daisies, speedwell and white lilies. The painted flowers have been given shadows and seem truly to have been scattered on the parchment.[43] Drolleries appear between the *trompe-l'oeil* flowers and slightly diminish the illusionistic effect.

Although this manuscript seems to show us 'the invention of the strewn border', we cannot be sure that the Hours of Charlotte de Bourbon-Montpensier was indeed the first manuscript in which scattered flower heads were depicted. That is not just because of the fact that not all manuscripts have been preserved. As we have noted, there were various illumination workshops in the first half of the 1470s in which similar developments were taking place. The strewn border was not a final goal in itself, just one of the possible outcomes of the illuminators' explorations of monochromy and polychromy, naturalism and illusionism. All of their various and playful inventions contin-



17.
Hours of Charlotte de Bourbon-Montpensier, Master of the Dresden Prayer book, Bruges, 1474-1477. Dim. 215 x 155 (101 x 71) mm. Alnwick, Alnwick Castle, CDN DNP: MS 482, fol. 74v.
Compline of the Hours of the Virgin, miniature with the Flight into Egypt, surrounded by a flower-and-acanthus border.



18.
Hours of Charlotte de Bourbon-Montpensier, Alnwick, Alnwick Castle, CDN DNP: MS 482, fol. 55r. Lauds of the Hours of the Virgin, miniature with the Visitation, framed by strewn-flower border.

ued to exist side by side through the decades that followed.

In the course of the 1470s and 1480s, the concept of strewn-pattern borders would be further developed by a group of illuminators known as the 'Ghent Associates'.[44] Just like the books of hours named above, many of the manuscripts illuminated by the Ghent Associates contained miniatures by Simon Marmion. He was a panel painter and illuminator who worked with Flemish illuminators from his home base in Valenciennes, in northern France. Quite often we find plants painted with a high level of veracity in the margins framing Marmion's miniatures. The exact nature of the cooperation between the Flemish illuminators and Marmion and of his influence on the development of strewn borders is yet to be completely explained.[45] It is also difficult to determine to what extent direct observation of nature played a role. Some of the flowers look as though they had been painted from nature. An indication that this was indeed the case is found in a book of hours intended for a German patron, that was decorated by two of the Ghent Associates, the Berlin Master of Mary of Burgundy and a second illuminator.[46] Some of the flowers in the margins of this manuscript appear to have been painted from flowers that had been dried in a flower press (ill. 19). There is no painted background and the flowers look as if they had been slipped through slits in the parchment before being fixed to the page. Here and there we find a red thread painted, by which the stems might have been sewn onto the parchment leaves. It is not clear if the illuminator had dried a number of flowers himself or if he had access to an herbarium, that is to say an *herbarius vivus* (see the Chapter by Thijsse, p. 72).[47] Moreover, it is not the case that illuminators began to paint flowers from life as most of the strewn borders were based on models. In the wider outer and lower margins in particular, we find certain recurring stock patterns, whereas the narrower inner and upper margins are usually filled at random with simpler small flowers.[48]

From about 1480 onwards, borders consisting mainly of flowers became common. The dark backgrounds were more frequently replaced with lighter, gold-coloured backgrounds.

19.
Book of hours for a German patron, Berlin Master of Mary of Burgundy, Ghent (?), *c.* 1485. Dim. 141 x 107 (81 x 55) mm. Krakow, BC MS Czart. 3025, p. 395. Sext of the Hours of the Virgin, historiated initial with the Adoration of the Magi, framed by common speedwell, clover, red poppy and giant speedwell (?).

20.
Book of hours and prayer book, Flanders or Brabant (?), *c.* 1500.
Dim. 175 x 127 (102 x 70) mm. The Hague, MMW MS 10 F 14, fol. 69v. Compline of the Hours of the Passion, with decorated initial.

21. ▷
Book of hours, Masters of the Dark Eyes (Croesinck group), Holland, *c.* 1490-1500. Dim. 195 x 135 (110 x 75) mm. The Hague, KB MS 76 G 9, fols. 15v-16r. Matins of the Hours of the Virgin, miniature with the Annunciation and a historiated initial with the Virgin and Child.

The flower-and-acanthus borders remained in common use until well into the sixteenth century. The same holds true for darker and other coloured backgrounds in addition to the ubiquitous yellow gold. Nor were drolleries done away with. In addition to new designs, the earlier models continue to crop up between the flowers, either partially or in their entirety. A tiny man carrying a pea vine, such as the one seen in a book of hours kept in Museum Meermanno/House of the Book (ill. 20), can be linked to the marginal repertoire of Lieven van Lathem (ill. 13).[49] The tiny figure becomes part of a larger topic in the strewn-flower borders, in which a woman is hauling an enormous pot of carnations in a wheelbarrow (in ill. 20, the pot of carnations is depicted in the left-hand margin).[50] The illuminators continued to explore new illusionistic effects, not all of which had to do with flowers.

Strewn borders outside of the southern Netherlands
The strewn-flower borders were such a success that the idea was also taken up in other regions. We find flower-and-acanthus borders in the northern Netherlands in the 1480s, for example in the Breviary of Beatrijs of Assendelft.[51] The work of the Masters of the Dark Eyes, active in the province of South Holland in the final decades of the fifteenth century and perhaps also in the southern Netherlands, shows that they were very well informed of the latest Ghent-Bruges models. The difference in their work is that many of the Masters of the Dark Eyes strived to leave no iota of a strewn border empty. This *horror vacui,* however, almost completely destroys the *trompe-l'oeil* effect (ill. 21).[52] In the work of the Masters of the Suffrages, who probably worked in Leiden at the beginning of the sixteenth century, we see relatively crude





copies with rather contrived attempts at *trompe-l'oeil* (ill. 4, p. 290).[53] Strewn borders were copied in Germany as well. Through their patron Cardinal Albrecht van Brandenburg, the Glockendon family of illuminators had access to one of the most exquisitely illuminated books of hours by Simon Bening, who was among the most famous illuminators of the southern Netherlands.[54] In France, illuminators experimented with pioneering architectural borders, but otherwise continued for the most part to produce marginal decoration that was divided into rectangular, square or triangular sections. These were filled in with gold, blue or red backgrounds and the traditional acanthus and flower motifs without any striking *trompe-l'oeil* effects. At the same time, we see a continuation of Marmion's naturalistic depictions of whole plants, which reached new heights in the *Grandes Heures d'Anne de Bretagne* illuminated by Jean Bourdichon, who had succeeded Jean Fouquet as court painter. All of the text pages of this book of hours, that was finished in 1508, contain a one-sided border with a naturalistic depiction of a plant, plus its Latin and French name, as if this were a painted herbarium (ill. 8 on p. 293).[55]

In the southern Netherlands in the meantime, the exploration of illusionism continued. Here, we see similar developments as in France such as new architectural designs, historiated margins that run over into the miniatures or instances of miniatures that are so large there is no room for borders around them. In addition, there was a tendency to combine a full-page miniature with a half-page miniature, which meant that the pictorial elements took up the largest part of the opening, with the text forced onto the next page. The strewn flowers remained a constant feature, but they were no longer an innovative element.

Conclusion

The Ghent-Bruges strewn border came into being as a result of more general developments in manuscript illumination affecting not just marginal decoration alone but also the miniatures and even the total presentation of the page. Illuminators explored the play of light and shadow. They experimented with naturalistic representations in colour, but also with monochrome grisaille techniques. At some point in the first half of the 1470s, these factors together led to the creation of strewn borders with individual flower heads scattered on a gold background. But we should certainly not see the strewn borders as an end point. Although flowered borders continued to be one of the favourite options for decorating the margins of manuscripts, they were far from the only option. The appeal of the strewn border, and of all the other types of *trompe-l'oeil* margins, lay in the fascinating interplay between reality and illusion.[56]



NOTES

[1] The Chapter by Van Bergen further deals with the essential function of medieval book decoration in the structuring of textual content.
[2] The term 'strewn border' is applied not only to flower borders, but also to Flemish illusionistic marginal decorations from the period of *c.* 1470-1550 in all of their various forms. Although the term seems to imply that strewn borders were only painted in Ghent and Bruges, that is not the case. Compare A.M.W. As-Vijvers, *Re-Making the Margin: The Master of the David Scenes and Flemish Manuscript Painting around 1500*. Turnhout 2013, pp. 87-91.
[3] T. Kren & S. McKendrick (eds.), *Illuminating the Renaissance: The Triumph of Flemish Manuscript Painting in Europe*. [Exhib. cat. Los Angeles, J. Paul Getty Museum and London, Victoria and Albert Museum, Los Angeles]. London/ Los Angeles 2003, in particular the articles by T. Kren, 'Revolution and Transformation: Painting in Devotional Manuscripts, circa 1467-1485', pp. 121-125, and 'Vienna Master of Mary of Burgundy', pp. 126-127; J.H. Marrow, *Pictorial Invention in Netherlandish Manuscript Illumination of the Late Middle Ages: The Play of Illusion and Meaning*. B. Dekeyzer & J. Van der Stock (eds.), Paris etc. 2005; As-Vijvers, op. cit. (n. 2).
[4] As-Vijvers, op. cit. (n. 2), pp. 17-19, 111-224.
[5] For any manuscripts mentioned in this article but not accompanied by an illustration here, the manuscripts in the Royal Library/Koninklijke Bibliotheek: National Library of the Netherlands, and Museum Meermanno/House of the Book in The Hague can be viewed online at *Medieval Illuminated Manuscripts*; see http://manuscripts.kb.nl/, hereafter referred to as MIM. For manuscripts elsewhere in the Netherlands, see *Medieval Manuscripts in Dutch Collections*, http://www.mmdc.nl/, hereafter MMDC. Currently, the KB and eCodicesNL (a project of Huygens ING; see https://www.huygens.knaw.nl/projecten/ecodicesnl/) are developing a successor to MMDC. In addition, I have made use of the database of the Byvanck working group. The Byvanck Database (originally a standalone in the department of Special Collections of the Royal Library) will be made accessible online by its integration into the digital collections of the RKD – Netherlands Institute for Art History in 2022-2025, see https://rkd.nl/en/projects-publications/projects/1161-medieval-miniatures-from-byvanck-to-the-rkd. Bibliographical sources have been kept to a minimum; earlier literature can be found through the works cited. For literature on manuscripts kept in the Royal Library and Museum Meermanno/House of the Book, see https://www.kb.nl/bronnen-zoekwijzers/databanken-mede-gemaakt-door-de-kb/handschriften-kb-documentatie (search key: shelfmark between double quotation marks). The websites were consulted in March 2020. For southern Netherlandish manuscripts, see A.M.W. As-Vijvers & A.S. Korteweg, *Splendour of the Burgundian Netherlands: Southern Netherlandish Illuminated Manuscripts in Dutch Collections*. Zwolle 2018.
[6] Although there are earlier examples, I have left the period before 1400 out of consideration. The early fifteenth-century prayer book illuminated by Michelino da Besozzo is kept in New York, Morgan Library & Museum, MS M. 944; see F. Manzari, 'Italian Books of Hours and Prayer Books in the Fourteenth Century', in: S. Hindman & J.H. Marrow (eds.), *Books of Hours Reconsidered*. London/ Turnhout 2013, pp. 153-209, pp. 191-193; K. Sutton, 'Michelino (de' Molinari) da Besozzo', in: *Grove Art Online*, www.oxfordartonline.com; for illustrations see http://corsair.themorgan.org. The Master of Walters 219, presumably a student of Michelino, emigrated to Paris where he was in contact with the Master of the Breviary of John the Fearless, who was involved in the illumination of the *Très Riches Heures*, see R.S. Wieck, 'Trial by "Fleur": The earliest Work by the Master of Walters 219', in: K.A. Smith & C.H. Krinsky (eds.), *Tributes to Lucy Freeman Sandler: Studies in Illuminated Manuscripts*. Turnhout 2007, pp. 315-329.
[7] The *Très Riches Heures* are kept in Chantilly, Musée Condé, MS 65; see P. Stirnemann, 'The King of Illuminated Manuscripts: The Très Riches Heures', in: R. Dückers & P. Roelofs (eds.), *The Limbourg Brothers: Nijmegen Masters at the French Court 1400-1416*. [Exhib. cat. Nijmegen, Museum Het Valkhof, Nijmegen]. Nijmegen 2005, pp. 112-119; M.M. Manion, 'Très Riches Heures', in: *Grove Art Online*, www.oxfordartonline.com.
[8] On pre-Eyckian marginal decoration, see D. Deneffe, 'Marginal Decoration in pre-Eyckian Manuscripts', in: M. Smeyers & B. Cardon (eds.), *Flanders in a European Perspective: Manuscript Illumination around 1400 in Flanders and Abroad. Proceedings of the International Colloquium Leuven, 7-10 September 1993*. Louvain 1995, pp. 297-308.
[9] In particular London, British Library, Add. MS 50005; see www.bl.uk/manuscripts/Viewer.aspx?ref=add_ms_50005_fs001r.
[10] The Hague, KB MS 79 K 2, p. 257; see MIM, loc. cit. (n. 5); in addition, see: K.M. Rudy, *Piety in Pieces: How Medieval Readers Customized their Manuscripts*. Cambridge 2016, p. 288; M. Bloem, 'Changing Workshop Policies: Passion Cycles by the Masters of Zweder van Culemborg', in: *The Use of Models in Medieval Book Painting*. Cambridge 2014, pp. 111-136, esp. pp. 120-131, 133, fig. 4.3, M. Bloem, 'Presentatio. Imitatio. Innovatio. The Imitation and Correction of a Corrupt Pictorial Tradition by the Masters of Zweder van Culemborg', in: A.J. van Egmond & C.A. Chavannes-Mazel (eds.), *Medieval Art in the Northern Netherlands before Van Eyck: New Facts and Features*. Utrecht 2014, pp. 130-145, esp. p. 215 n. 50, and M. Bloem, *De Meesters van Zweder van Culemborg. Werkplaatspraktijken van een groep Noord-Nederlandse verluchters, ca. 1415-1440*. [Dissertation University of Amsterdam] 2015, pp. 37-38, 95-96, 114-115, 157, 159, 196-204, 354-360, 571 ill. 134.
[11] Rotterdam, Openbare Bibliotheek, Special Collections, MS 96 G 12, fols. 23v, 133v, 143v. These are full-page miniatures in the style of the Master of Zweder van Culemborg, added in around 1430 to a manuscript that had been illuminated by the Master of the Brno Speculum around 1415; see MMDC, loc. cit. (n. 5); A.S. Korteweg (ed.), *Kriezels, aubergines en takkenbossen. Randversiering in Noordnederlandse handschriften uit de vijftiende eeuw*. [Exhib. cat. The Hague, Rijksmuseum Meermanno/House of the Book and Koninklijke Bibliotheek]. Zutphen 1992, pp. 40-41, no. 6; *The Limbourg Brothers*, op. cit. (n. 7), pp. 296-297, no. 49.
[12] New York, Morgan Library & Museum, MMS M. 917 and M. 945, see R. Dückers and R. Priem (eds.), *The Hours of Catherine of Cleves. Devotion, Demons and Daily Life in the Fifteenth Century*. [Exhib. cat. Nijmegen, Museum Het Valkhof]. Antwerp 2009; A.M.W. As-Vijvers (ed.), *From the Hand of the Master: The Hours of Catherine of Cleves*. Antwerp 2009; The Hours of Catherine of Cleves. [Facsimile edition with commentary]. R. Dückers et al. (eds.), Munich/ New York 2010; for illustrations, see also http://www.themorgan.org/collection/Hours-of-Catherine-of-Cleves.
[13] New York, Morgan Library & Museum, MS M. 945, fol. 11r, see A.M.W. As-Vijvers, 'Spotlight on the Margin: Border Decoration According to the Master of Catherine of Cleves', in: As-Vijvers, op. cit. (n. 12), pp. 45-61: pp. 60-61, ill. 49.
[14] Los Angeles, J. Paul Getty Museum, MS 2 (84.ML.67), fols. 127v-128r, *c.* 1440-1445, see D. Vanwijnsberghe & Erik Verroken, *"A l'Escu de France". Guillebert de Mets et la peinture de livres à Gand à l'époque de Jan van Eyck (1410-1450)*. Brussels 2017 (Scientia Artis: 14), pp. 292-307, 344-347; the Hours of Daniel Rym (Daneel Rijm) from *c.* 1415-1425 contains a page with similar flowers, albeit green: Baltimore, Walters Art Museum, MS W.166, fol. 1v; see Vanwijnsberghe & Verroken 2017 (n. 14/ibidem), pp. 186-200; Lilian M.C. Randall, *Medieval and Renaissance Manuscripts in the Walters Art Gallery*, vol. III (2 parts), *Belgium, 1250-1530*. Baltimore/ London 1997, part 1, pp. 112-123 cat.no. 230, part 2, p. 552 colour pl. 29b, pp. 581-583 ills. 441-444, esp., ill. 441; also https://manuscripts.thewalters.org.
[15] New York, Morgan Library & Museum MS. M. 358; for illustrations and bibliography, see http://corsair.themorgan.org.
[16] See the Hours of Balzarrino da Pusterla, *c.* 1390-1400, Modena, Biblioteca Estense e Universitaria, MS Lat. 842 (α.R.7.3), Manzari, art. cit. (n. 6), pp. 181-184, 205, esp. fig. 61c on p. 183, facsimile edition: *Libro d'ore di Modena: Manoscritto Lat. 842 = α.R.7.3, Biblioteca Estense Universitaria* [with commentary volume]. On the illuminator, see also K. Sutton, 'Tomasino da Vimercate', in: *Grove Art Online*, www.oxfordartonline.com. Voor Michelino da Besozzo, see n. 5.

[17] The Hague, Royal Library, MS 76 F 6; Manzari, art. cit. (n. 6), pp. 185-187; see also MIM, loc. cit. (n. 5).

[18] Timothy B. Husband, *The Art of Illumination: The Limbourg Brothers and the Belles Heures of Jean de France, Duc de Berry*. [Exhib.cat. Los Angeles, J. Paul Getty Museum and New York, The Metropolitan Museum of Art]. New York, etc. 2008. Compare the *Cité de Dieu* by Augustine in The Hague, Royal Library, MS 72 A 22, Paris, *c.* 1410, in which the green and pink acanthus leaves are packed so closely together that it looks as if there is a plain background; see A.S. Korteweg, *Splendour, Gravity and Emotion: French Medieval Manuscripts in Dutch Collections*. Zwolle/The Hague 2004, pp. 102-103 ills. 78-79, p. 209 no. 43. For Flemish examples from *c.* 1400, see D. Vanwijnsberghe, *"Moult bons et notable". L'enluminure tournaisienne à l'époque de Robert Campin (1380-1420)*. Leuven 2007, pp. 52-53 ills. 67-68, p. 67 ill. 93, p. 209 ills. 328-330.

[19] New York, Morgan Library & Museum MS M. 866, see *The Golden Age of Dutch Manuscript Painting*. [Exhib. cat. Utrecht, Rijksmuseum Het Catharijneconvent and New York, the Pierpont Morgan Library]. Stuttgart-Zürich 1989, cat. no. 12, esp. ill. 12b; for illustrations and recent secondary literature, see http://corsair.themorgan.org.

[20] The Hague, KB MS 76 F 28, fol. 63r; see G.T. Clark, in: As-Vijvers & Korteweg, op. cit. (n. 5), no. 21, pp. 104-105, 339, and MIM, loc. cit. (n. 5). A comparable manuscript is a book of hours in the Royal Library in The Hague, KB, MS 133 D 14 (e.g. fol. 101r), also from the Gold Scrolls group, *c.* 1420-1440, with inserted miniatures in late pre-Eyckian style; see A.S. Korteweg, in: As-Vijvers & Korteweg, op. cit. (n. 5), no. 16, pp. 90-91, 337, and MIM, loc. cit. (n. 5). On psalter iconography, see: F.O. Büttner, 'Der illuminierte Psalter im Westen', in: F.O. Büttner (ed.), *The Illuminated Psalter: Studies in the Content, Purpose and Placement of its Images*. Turnhout 2004, pp. 1-106, esp. pp. 21-23 and ills. 37-38.

[21] The Hague, Royal Library, MS 76 F 22, fols. 56r, 106r. The manuscript was illuminated by the Master of Thomas Hoo, a follower of the Bedford Master; see G.T. Clark, *Art in a Time of War: The Master of Morgan 453 and Manuscript Illumination in Paris during the English Occupation (1419-1435)*. Turnhout 2016, pp. 267-268, A.S. Korteweg, 'The Form and Content of Jean de Berry's Books of Hours', in: *The Limbourg Brothers*, op. cit. (n. 7), pp. 134-147, esp. p. 137, fig. on p. 134; Korteweg op. cit. (n. 18), p. 182 ill. 149, p. 188 ill. 157, p. 214 no. 81; for further references, see MIM, loc. cit. (n. 5).

[22] The first two volumes of this book of hours are found in The Hague, KB MSS 74 G 37 and 74 G 37a, and the third volume in Los Angeles, J. Paul Getty Museum, MS 7; see Clark, op. cit. (n. 21), p. 272; Korteweg, op. cit. (n. 18), pp. 169-170 ills. 134-135, p. 174, 213 no. 72; *Jean Fouquet. Peintre et enlumineur du xve siècle*. [Exhib.cat. Paris, Bibliothèque nationale de France]. F. Avril (ed.), Paris 2003, pp. 187-192, no. 23; F. Avril, 'Simon de Varie, Patron of the Hours', in: J.H. Marrow, *The Hours of Simon de Varie*. [Facsimile edition with commentary]. London 1994, pp. 111-144, esp. p. 113, 132 n. 6; N. Reynaud, 'L'Associé principal du Maître de Bedford ou Maître de Dunois', 'Le Maître de Jean Rolin', and 'Heures de Simon de Varie', in: F. Avril & N. Reynaud (eds.), *Les manuscrits à peintures en France (1440-1520)*. [Exhib.cat. Paris, Bibliothèque nationale de France]. Paris 1993, p. 36, p. 38 and pp. 136-139 no. 69, respectively; for further references, see MIM, loc. cit. (n. 5).

[23] Avril, op. cit. (n. 22), p. 113, 132 n. 6. On the symbolic meaning of the columbine, see my chapter 'Flowers of Meaning' in this book (Chapter 14).

[24] Reynaud, op. cit. (n. 22), p. 36, 38, 137.

[25] The earliest manuscript to be executed completely in grisaille was the Hours of Jeanne d'Evreux (New York, Cloisters, MS 54.1.2) by Jean Pucelle, Paris, beginning of the fourteenth century. Compare M. Krieger, 'Grisaille', in: *Grove Art Online*, www.oxfordartonline.com.

[26] The Hague, KB MS 76 F 2; see A.S. Korteweg, in: As-Vijvers & Korteweg, op. cit. (n. 5), no. 32, pp. 140-141, 344-345, A.S. Korteweg, 'The Book of Hours of Philip the Good, Duke of Burgundy, in The Hague and its later Adaptation', in: B. Cardon et al. (eds.), *Als Ich Can. Liber amicorum in Memory of Professor Dr. Maurits Smeyers*, 2 vols., Paris etc. 2002, vol. 1, pp. 757-771; also MIM, loc. cit. (n. 5). On Jean de Tavernier, see D. Vanwijnsberghe & E. Verroken, 'Jan De Tavernier', in: *Miniatures flamandes 1404-1482*. [Exhib. cat. Paris, Bibliothèque nationale de France and Brussels, Royal Library of Belgium]. B. Bousmanne & T. Delcourt (eds.), Leuven 2011, pp. 212-215. Philip's book of hours is also an example of a manuscript without any painted marginal decoration. Between the late 1440s and late 1460s, some manuscripts, and secular manuscripts in particular, did not always have marginal decoration; see C. Reynolds, 'The Undecorated Margin: The Fashion for Luxury Books without Borders', in: E. Morrison & T. Kren (eds.), *Flemish Manuscript Painting in Context: Recent Research*. Los Angeles 2006, pp. 9-26.

[27] The Hague, Museum Meermanno/House of the Book, MS 10 F 1. The historiated initials were painted by a Vrelant follower who regularly collaborated with the Master of the Dresden Prayer Book; see A.M.W. As-Vijvers, in: As-Vijvers & Korteweg, op. cit. (n. 5), no. 56, pp. 220-221, 359-360; B. Brinkmann, *Die Flämische Buchmalerei am Ende des Burgunderreichs. Der Meister des Dresdener Gebetbuchs und die Miniaturisten seiner Zeit*. 2 vols. Turnhout 1997, vol. 1, pp. 42-44. For further literature, see MIM, loc. cit. (n. 5), as well as *Dombibliothek Hildesheim, Der Codex Rotundus, Vollständige Faksimile-Ausgabe der Handschrift Hs 728*. B. Brinkmann (Komm.), Graz 2012, p. 61, 63, 68 (p. 121, 123, 128), ill. 20.

[28] The three most famous examples of this are (1) Vienna, Österreichische Nationalbibliothek, Cod. 1856, see S. McKendrick, 'Master of Anthony of Burgundy', in: *Illuminating the Renaissance*, op. cit. (n. 3), p. 264-265; P. Schandel, 'De Meester van Antoon van Bourgondië', in: *Miniatures flamandes*, op. cit. (n. 26), pp. 311-313; for further references, see http://www.onb.ac.at/sammlungen/hschrift/bibliographie.htm; (2) Vatican City, Biblioteca Apostolica Vaticana, Cod. Vat. Lat. 9488, see C. Montuschi, 'La rara eleganza della pergamena nera: il libro d'ore *Vaticano Latino* 9488', in: A.M. Piazzoni (ed.), *Studi in onore del Cardinale Raffaele Farina*. 2 vols. (= Studi e Testi 477-478), Vatican City 2013, vol. 2, pp. 701-767, esp. pp. 741-744; online at https://digi.vatlib.it; (3) New York, Morgan Library & Museum, MS 493, a digital facsimile of which is available at http://www.themorgan.org/collection/Black-Hours.

[29] The Hague, Royal Library, MS 131 G 4, fol. 69v, *c.* 1470; see W. van Drimmelen, A. Leerintveld, Th. Vermeulen & C. de Wolf (eds.), *Honderd hoogtepunten uit de Koninklijke Bibliotheek / A hundred highlights from the Koninklijke Bibliotheek*. Zwolle 1994, no. 17, pp. 50-51; *The Golden Age*, op. cit. (n. 19), p. 224 no. 74; MIM, loc. cit. (n. 5).

[30] The Hague, Royal Library, MS 76 G 14, by a follower of the Master of the Prince of Piedmont; see Korteweg, op. cit. (n. 18), pp. 177-179 with ill. 144, p. 200 ill. 170, p. 214 no. 76; *Les manuscrits à peintures*, op. cit. (n. 22), pp. 210-211, no. 116; for further secondary literature and the folia that are not shown here, see MIM, loc. cit. (n. 5).

[31] Utrecht, University Library, MS 42, fol. 1v, see S. McKendrick, in: As-Vijvers & Korteweg, op. cit. (n. 5), no. 46, pp. 180-181, 186-187, 354-355. A digital version of the manuscript can be found through https://utrechtuniversity.on.worldcat.org/oclc/965419838. However, contrary to the information given on this website, the work of the Master of Margaret of York has been disaggregated: the miniature on fol. 1v is attributed to the Master of the Bruges *Genealogia deorum* and the historiated initials found later in the manuscript to the Master of the Chronicle of England; see S. McKendrick, 'Master of Margaret of York Group', in: *Illuminating the Renaissance*, op. cit. (n. 3), pp. 217-218, esp. p. 218 n. 14; P. Schandel, 'De Meester van Margaretha van York 'and 'De Meester van de Kroniek van Engeland', in: *Miniatures flamandes*, op. cit. (n. 26), pp. 295-296 and pp. 323-325, respectively.

[32] Los Angeles, J. Paul Getty Museum, MS 37; see *Illuminating the Renaissance*, op. cit. (n. 3.), pp. 128-131 no. 16; A. De Schryver, *The Prayer Book of Charles the Bold: A Study of a Flemish Masterpiece from the Burgundian Court*. Los Angeles 2008. For textile borders, see M.L. Goehring, 'Taking Borders Seriously: The Significance of Cloth-of-Gold Textile Borders in Burgundian and Post-Burgundian Manuscript Illumination in the Low Countries', *Oud Holland* 119:1 (2006), pp. 22-40; M.L. Goehring, 'The Representation and Meaning of

Luxurious Textiles in Franco-Flemish Manuscript Illumination', in: K.M. Rudy & B. Baert (eds.), *Weaving, Veiling, and Dressing: Textiles and their Metaphors in the Late Middle Ages*. Turnhout 2007, pp. 121-155, esp. pp. 140-141.

[33] The Book of Hours of Mary of Burgundy is kept in Vienna in the Österreichische Nationalbibliothek as Cod. 1857; see *Illuminating the Renaissance*, op. cit. (n. 3), pp. 137-141 no. 19; for further references, see http://www.onb.ac.at/sammlungen/hschrift/bibliographie.htm. The Trivulzio book of hours is in The Hague, Royal Library, MS 1900 A 009 (formerly SMC 1); see A.M.W. As-Vijvers, in: As-Vijvers & Korteweg, op. cit. (n. 5), no. 55, pp. 218-219, 255, 358-359; also, *Illuminating the Renaissance*, op. cit. (n. 3), pp. 132-134 no. 17; for illustrations, see http://www.kb.nl/themas/middeleeuwen/trivulzio-getijdenboek.

[34] In the outer margin, just above the figure holding a sword and next to the arched top of the miniature.

[35] Aside from the Carpentin Hours that is discussed in this chapter, other examples of this are the Salting Hours, London, Victoria & Albert Museum, L.2384-1910 (Salting MS 1221) and a book of hours in Lisbon, Museu Calouste Gulbenkian, MS LA 144. In addition to the Dresden Master and Simon Marmion, other illuminators were involved in the work on this manuscript, but this lies outside the scope of this article; see G.T. Clark, 'The Master of Fitzwilliam 268: New Discoveries and New and Revisited Hypotheses' [chapter 10], in: Morrison & Kren, op. cit. (n. 26), pp. 123-134.

[36] On the Hours of Jean de Carpentin, currently in a private collection in the United States (formerly London, Sam Fogg), see A. Bovey, *Jean de Carpentin's Book of Hours: The Genius of the Master of the Dresden Prayer Book*. London 2011; and also *Illuminating the Renaissance*, op. cit. (n. 3), pp. 208-210, no. 48.

[37] Compare the colour reproductions in Bovey, op. cit. (n. 36), for example, fols. 150r, 183r, 189r, 200r, 288v, 296r, 297v.

[38] Blue carnations are also found in Munich, Bayerische Staatsbibliothek, Clm 23637, fol. 48v, compare A.M.W. As-Vijvers, 'More than Marginal Meaning? The Interpretation of Ghent-Bruges Border Decoration', *Oud Holland* 116:1 (2003), pp. 3-33, esp. ill. 12 [black and white] on p. 15; and Paris, Bibliothèque Nationale de France, MS Lat. 9474, fol. 25r (with poppy leaves); compare n. 52 below. On the problem of determining plant species, see Chapter 12 by Van Bergen.

[39] Carpentin Hours, fol. 189r, see Bovey, op. cit. (n. 36), ill. on p. 196.

[40] Alnwick Castle, Collection of the Duke of Northumberland, DNP: MS 482; see J. Backhouse, 'The Hours of Charlotte de Bourbon at Alnwick Castle', in: *Als Ich Can*, op. cit. (n. 26), pp. 71-90; *Illuminating the Renaissance*, op. cit. (n. 3), pp. 199-202, no. 44; L. De Kesel, 'Use and Reuse of Manuscripts and Miniatures: Observations on Pasted-In, Recycled and Removed Miniatures and Text Leaves in Some Late Medieval Flemish Illuminated Manuscripts Related to *La Flora*', *Bulletin du bibliophile* 1 (2011), pp. 48-85, esp. pp. 50-51.

[41] See Backhouse, art. cit. (n. 40), p. 75 ill. 2, p. 76 ill. 3; *Illuminating the Renaissance*, op. cit. (n. 3), p. 200 ill. 44b; Bovey, op. cit. (n. 36), p. 116 ill. 117.

[42] See Backhouse, art. cit. (n. 40), p. 74 ill. 1, p. 78 ill. 5, p. 81 ill. 7; *Illuminating the Renaissance*, op. cit. (n. 3), p. 201 ill. 44c; Bovey, op. cit. (n. 36), p. 136 ill. 139.

[43] In addition to strewn borders with different types of flowers such as these, Charlotte's book of hours also contains borders devoted to just one flower species, March violets for example, that are depicted from different angles (fol. 23r: see Backhouse, art. cit. (n. 40), p. 74 ill. 1). The book of hours also contains a border in which scallop shells are arranged in a diamond pattern, formed by thin branches that have been placed crosswise. Both the shells and the branches are shadowed to increase the *trompe-l'oeil* effect. This scallop border, framing a miniature of the *Annunciation* in Charlotte's book of hours (fol. 46r: see Backhouse, art. cit. (n. 40), p. 77 ill. 4), was used many times in later Ghent-Bruges manuscripts in combination with a depiction of St. James the Greater, whose attribute was a scallop shell; see Chapter 14, 'Flowers of Meaning'.

[44] T. Kren, 'Ghent Associates', in: *Illuminating the Renaissance*, op. cit. (n. 3), pp. 179-180.

[45] See for example, C.M. Fisher, *The Development of Flower Borders in Ghent-Bruges Manuscripts 1470-1490*. [Dissertation University of London (Courtauld Institute)] 1996; A.M.W. As-Vijvers, 'Recycling the Huth Hours: The Master of the David Scenes and the Making of the Brukenthal Breviary, or, the Ghent Associates and the Contribution of Simon Marmion to Ghent-Bruges Manuscript Painting', in: B. Dekeyzer & J. Van der Stock (eds.), *Manuscripts in Transition: Recycling Manuscripts, Texts and Images. Proceedings of the International Congress held in Brussels (5-9 November 2002)*. Paris etc. 2005, pp. 379-390; As-Vijvers, op. cit. (n. 2), pp. 260-264, 267-268; A. Dubois, 'The *Donne Hours*: A Codicological Puzzle', in: *Journal of Historians of Netherlandish Art (JHNA)*, 6:1 (2014), online publication https://doi.org/10.5092/jhna.2014.6.1.2).

[46] Krakau, Biblioteka Czartoryskich, MS Czart. 3025 I Rkps; As-Vijvers, op. cit. (n. 2), pp. 513-515, 551-555, online at https://cyfrowe.mnk.pl/dlibra/publication/12160/edition/11969. The manuscript also contains a few strewn borders.

[47] On the development of the *herbarius vivus*, see Chapter 3 by Gerard Thijsse.

[48] As-Vijvers, op. cit. (n. 2), pp. 171-175.

[49] The Hague, Museum Meermanno/House of the Book, MS 10 F 14, f. 69v; see K.H. Broekhuijsen, in: As-Vijvers & Korteweg, op. cit. (n. 5), no. 62, pp. 238-239, 249, 363-364.

[50] As-Vijvers, op. cit. (n. 2), p. 168.

[51] Utrecht, Museum Catharijneconvent, OKM h3; for illustrations and bibliographical references, see the website of the museum: http://adlib.catharijneconvent.nl/ais54/search/simple.

[52] For example, in the book of hours reproduced here, The Hague, Royal Library, MS 76 G 9; see K.H. Broekhuijsen, 'Decoration Programmes in Books of Hours by the Masters of the Dark Eyes', in: Hindman & Marrow, op. cit. (n. 6), pp. 353-364, and MIM, loc. cit. (n. 5). On the Masters of the Dark Eyes, see K.H. Broekhuijsen, *The Masters of the Dark Eyes: Late Medieval Manuscript Painting in Holland*. Turnhout 2009 (with MS 76 G 9 as cat.no. 33).

[53] The Hague, Royal Library MS. 130 E 5; see A.S. Korteweg, 'Framing the Issues: A Codicological Approach to Dutch Border Decoration', in: J.F. Hamburger and A.S. Korteweg (eds.), *Tributes in Honor of James H. Marrow: Studies in Painting and Manuscript Illumination of the Late Middle Ages and Northern Renaissance*. London/Turnhout 2006, pp. 301-310, 625-626, esp. pp. 309-310, and *The Golden Age*, op. cit. (n. 19), pp. 297-298, no. 106; MIM, loc. cit. (n. 5). On the Masters of the Suffrages, see A.M.W. As-Vijvers, 'Manuscript Production in the Monastery of St. Hieronymusdal in Lopsen, near Leiden', *Oud Holland* 134:2/3 (2021), pp. 69-100; *The Golden Age*, op. cit. (n. 19), pp. 285-288; M. van Delft & E. van der Vlist, 'Het geïllustreerde boek in Leiden', in: C. Vogelaar et al. (eds.), *Lucas van Leyden en de Renaissance*. [Exhib. cat. Leiden, Museum De Lakenhal in cooperation with the Rijksmuseum in Amsterdam]. Antwerp 2011, pp. 177-187, 194, esp. pp. 183-187.

[54] Formerly in the Ritman Library; the Hours of Cardinal Albrecht of Brandenburg is now in a private collection in Liechtenstein; see *The Hours of Albrecht of Brandenburg, Illuminated Manuscript by Simon Bening: The Final Lot in the Sale of a Second Selection of Illuminated Manuscripts from c. 1000 to c. 1522: The Property of Mr. J.R. Ritman Sold for the Benefit of the Bibliotheca Philosophica Hermetica, Amsterdam* [session 1, lot 36]. [Auction catalogue London, Sotheby's, 19 June 2001]. For bibliographical references on Simon Bening, see T. Kren, 'Simon Bening', in: *Illuminating the Renaissance*, op. cit. (n. 3), pp. 447-448; G.T. Clark, *Das Da Costa-Stundenbuch. Vollständige Faksimile-Ausgabe der Handschrift MS M.399 aus The Morgan Library & Museum, New York. Commentary/Kommentar*. Graz 2010. On Nikolaus Glockendon and other illuminators who were influenced by the Flemish strewn borders, see U. Merkl, *Buchmalerei in Bayeren in der ersten Hälfte des 16. Jahrhunderts. Spätblüte und Endzeit einer Gattung*. Regensburg 2007, pp. 88-98; A. Grebe, 'Transgressing the Borders: The Fortunes of Flemish Book Illumination in Southern Germany after 1500', in: *Manuscripts in Transition*, op. cit. (n. 45), pp. 431-439.

[55] Paris, Bibliothèque Nationale de France, MS Lat. 9474, produced in Tours, ca. 1503-1508; see *Great Hours of Anne of Brittany*. [Facsimile edition with commentary]. M.P. Lafitte (ed.), Barcelona 2010; for illustrations, see also http://mandragore.bnf.fr/jsp/rechercheExperte.jsp; on Bourdichon, see furthermore N. Reynaud, 'Bourdichon, Jean', in: *Grove Art Online*, www.oxfordartonline.

com. There are more manuscripts with such plants painted by Bourdichon, for example, New York, Morgan Library & Museum, MS M. 732, see http://corsair.themorgan.org.

[56] On the interpretation of strewn-pattern borders, see Chapter 14 'Flowers of Meaning'.

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14

FLOWERS OF MEANING THE INTERPRETATION OF MARGINAL DECORATION IN SOUTHERN NETHERLANDISH MANUSCRIPTS FROM AROUND 1500


celum et terram · Deū ·
Sit nomen domini benedictū
Ex hoc nunc & usq; in seculū.
Antiphona in festo beate Marie
Salue sancta parens eccā
puerpera regem qui celum terramq; regit in se
cula seculorum Amē Sancti omnes tuum iuua
men quicunq; celebrant
tuam cōmemorationem.
Gloria patri &c repetitio.
Salue sancta parens eccā puerpera regem qui. ute.

Anne Margreet W. As-Vijvers

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600*. Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_CH14

Abstract
The naturalistic representation of flowers and plants in Ghent-Bruges strewn borders seems an invitation to make a connection between the flower species depicted and the miniatures and texts they frame. However, flowers generally had more than one symbolic or practical meaning, and their significance is often equivocal and inconsistent. The interpretation of the borders requires a knowledge of medieval symbolic meaning, the manuscript's textual content, liturgical and devotional practices and cultural-historical customs, and the working methods of the illuminators. The borders are in fact intended to be open to multiple interpretations. The marginal decoration plays a continuous game with reality, and different aspects – either artistic display, illusionistic play, decorative effect or symbolic meaning – predominate in each individual manuscript.

Keywords: manuscript illumination, border decoration, flower symbolism, liturgical and cultural practices, calendar iconography



The naturalistic representation of flowers and plants in Ghent-Bruges strewn borders, as discussed in the previous chapter 'Flowering Margins',[1] is an invitation to make a connection between the types of flowers depicted and the miniatures and texts they frame.[2] Even if an overall, interrelated interpretation of text, illustrations and marginal decorations is not always possible, we can take the following assertion as an important starting point for our considerations: in the late Middle Ages, the gathering of flowers was a common metaphor for the saying of prayers.[3] This imagery is reflected in the rosary as every '*Ave Maria*' or '*Pater noster*' represents a rose in the crown of roses, the ultimate spiritual result of reciting the entire rosary.[4] The devotee offers these flowers, earned by pious prayer, to Mary, who receives them joyfully and then intercedes with Jesus on behalf of the supplicant. In a book of hours with monochrome borders we see angels in the margin offering the 'prayer-flowers' to Mary and the Christ child, who are depicted in a half-page miniature (ill. 5).[5] A second starting point is that throughout the ages almost all types of flowers and plants have had symbolic meanings.[6] This symbolism is primarily religious, as flowers refer to Christian virtues and are metaphors for Mary's exemplary purity. Most flowers have more than one meaning, however, and these can also be contradictory in nature. Given that most strewn borders are filled with different types of flowers, their interpretation is not unambiguous. Even if, in general, the scattered flowers emphasize a religious, devotional atmosphere for the reader of the prayer book or book of hours, the creation of a specific, substantive relationship between text, image and margin demanded considerable deliberation, knowledge and time. Moreover, we may assume that the average illuminator saw his task as first and foremost the creation of pleasing decorations. He used models to help him with this and probably did not worry too much about the significance of given motifs.[7] As a consequence and because the context might be different, we find that in one manuscript, a marginal decoration may relate to the content, while an almost identical border in another manuscript does not.[8]

Despite this caveat, it is possible to relate some strewn borders to the text or principal illustration on the page. When

1. ◂
Book of hours, 'Principal Associate' of Simon Bening, Bruges (?), *c.* 1510-1520. Dim. 144 x 102 (71 x 45) mm. Utrecht, MCC ABM h11, fol. 43r. Introit of the Mass of the Virgin, marginal decoration with rosary beads consisting of roses and irises.

2. ◁
Book of hours for use in the diocese of Louvain (Maastricht?), Master of Morgan M. 491, southern Netherlands (Brabant), *c.* 1530. Dim. 139 x 91 (90 x 50) mm. The Hague, KB MS 133 D 11, fol. 8r. Calendar for July with a miniature of the grain harvest.

3.
Book of hours, Master of the Musgrave Hours (miniature) and Calendar Decorator of the Leber Hours (border decoration), Bruges (?), *c.* 1515-1525.
Dim. 150 x 100 (81 x 52) mm. The Hague, MMW MS 10 E 3, fols. 34v-35r. Hours of the Cross with miniature of the Crucifixion and strewn-flower border with a pot of carnations.

certain flowers are repeatedly used with the same text or miniature, it seems more likely that a substantive meaning should be inferred. Some flower borders include a striking or unusual motif that establishes a relationship between the margin and the content of the depiction or text. Particularly distinct examples of this may be seen in the Office of the Dead. We shall now examine a number of flowering margins that have such meaning, using examples from Dutch collections wherever possible. Since almost all the examples come from books of hours and prayer books, we shall discuss them in the order in which the texts and their illustrations are normally arranged: the calendar, the prayer '*Salve sancta facies*' to the Holy Face of Christ, the Hours of the Cross and of the Holy Spirit, the Marian mass, the Hours of the Virgin, the penitential psalms, the Office of the Dead and the prayers of intercession to individual saints (*suffragia*).

The calendar and the prayers that follow it

The calendar of a book of hours is illustrated with images from the zodiac and the labours of the month. In addition to the characteristic tasks and activities portrayed for a specific month, some strewn-flower borders depict flowers that bloom in that particular month.[9] In the early spring months of February and March, March violets bloom, their colours offering a bright contrast to the first daisies.[10] A book of hours which was presumably intended for use in Maastricht includes flowering peas and beans for June. The miniature for the month of July is flanked by poppies and cornflowers, typical wildflowers found in the fields of wheat that farmers are shown harvesting here (ill. 2).[11] For September and October, months associated with the grape harvest and winemaking, we frequently find borders with grapevines bearing ripe clusters of fruit.[12] Birds depicted in the borders for the month of October probably refer to the



catching of migratory birds in autumn with the use of a decoy, certainly if one of the birds is an owl.[13] For the winter months of December, January and February, we generally find flower-and-acanthus borders with brown, grey or white branches, from which a few flowers sprout. As models, these flowers might have been previously dried.[14] Birds provide some life among the winter branches.[15] It is rare, however, that a whole calendar is illustrated in keeping with the seasons.

The '*Salve sancta facies*' prayer that generally follows the calendar in southern Netherlandish manuscripts, is illustrated with a 'portrait' of the face of Jesus. The surrounding border often suggests that the miniature is a representation of an altarpiece. The complementary illustrations in the margins frequently include scenes such as Christ carrying the cross, accompanied by St. Veronica, or of Veronica alone showing the cloth she used to blot his face, leaving a permanent imprint on the fabric.[16] Although iconographically relevant, this border decoration does not include flowers.

The Hours of the Cross are often accompanied in the margins by images of the so-called instruments of the Passion of Jesus.[17] Flowers and, in particular, red roses as symbols of the Passion are frequently found in this section.[18] A book of hours, illuminated by two collaborators of Simon Bening, has a strewn border facing a full-page crucifixion that is dominated by a pot of red carnations (ill. 3).[19] The Greek word for carnation, *dianthus*, means 'flower of God'.[20] However, because of its Latin name, *carnation*, from which derives its English name 'carnation', the flower is also a symbol of the incarnation of Christ through the Holy Spirit, the beginning of humankind's redemption through Jesus's death on the cross. At the same time, because wild carnations look like cloves or nails, late medieval vernacular names like 'clove gillofer' and 'drop of blood' are references to the passion as carnations symbolize the wounds caused by the nails of the cross.[21] On rosary prints, the *Pater Noster* beads of the rosary are depicted as roses and carnations, above which are shown Christ's wounded heart, hands and feet.[22] In the book of hours under discussion here, we find a few March violets in the grass next to the pot of blood red carnations. Because violets grow low to the ground, they symbolize humility, and Christ, depicted in the miniature on the cross may be viewed as the epitome of humility.[23] When the most prominent types of flowers depicted have a meaning that relates to the subject of the miniature, as is the case here, it is not necessary to seek an interpretation for the other flowers that are simply used to fill in the margins.[24] Still, the significance we have seen in this strewn border does not mean that all margins containing carnations have a symbolic meaning. A book of hours kept in the Catharijneconvent Museum in Utrecht contains almost exactly the same strewn border as the The Hague manuscript with the red carnations. The similarity in types and placement of the flowers suggests that the same model must have been the source for both. However, in the Catharijneconvent manuscript, the border surrounds a *suffragium* or suffrage, a prayer of intercession to St. John the Evangelist, and does not seem to have any specific relevance to the text.[25]



The Hours of the Holy Spirit open with a miniature of Pentecost, the descent of the Holy Spirit onto the heads of the apostles as described in the Acts of the Apostles (Acts 2:1-4). Although Mary is not explicitly mentioned in this story, she is generally depicted at the centre of the group of apostles. Flowers played a great role in the liturgical celebration of Pentecost. They were thrown from a scaffolding or some other high point in the church to symbolize the descent of the Holy Spirit.[26] To add a special touch, there were even mechanical doves that could be 'flown' on ropes through the church.[27] Some architectural borders have niches reminiscent of the triforium of a Gothic church. These niches may contain one or more doves, frequently surrounded by a banderole with such texts as '*veni sancte spiritus*', 'come, Holy Spirit', and pots of flowering plants.[28] Should we see this as a reference to a church decorated for the celebrations at Pentecost? The church ritual involving flowers at Pentecost suggest that strewn borders surrounding miniatures of Pentecost can be generally regarded as a depiction of a festive shower of flowers.

The Marian mass, usually illustrated with an image of the

4. ◁
Book of hours, bookblock South-Holland, *c.* 1470-1480. Full-page miniatures by the Masters of the Suffrages, added *c.* 1500-1510.
Dim. 179 x 123 (99 x 64) mm. The Hague, KB MS 130 E 5, fol. 14v. Matins of the Hours of the Virgin, miniature of the Annunciation.

5.
Book of hours, southern Netherlands, Ghent (?), *c.* 1490.
Dim. 157 x 108 (82 x 47) mm. The Hague, KB MS 133 E 14, fol. 42r. Prayer to Mary 'O intemerata', miniature with Mary on the crescent moon and angels in the margins.

6.
Book of hours, Master of Antoine Rolin, or his circle, Hainaut (Mons?), *c.* 1490-1500.
Dim. 154 x 112 (93 x 63) mm. The Hague, KB MS 76 F 16, fol. 32r. Matins of the Hours of the Virgin, miniature with the conception of Mary in Anne's womb.

Virgin and Child, lends itself for general associations between prayers and the gathering of flowers, so that a border filled with all sorts of flowers will usually contain flowers that can be linked to Mary, the child, the incarnation or paradise. In an unfinished book of hours without miniatures and only marginal decoration, the introit of the Marian mass is more richly decorated than usual and has a four-sided strewn border on a green background (ill. 1, p. 287).[29] Alternating red and white roses along with irises form a rosary, in which the roses represent *Ave maria*'s and the irises *Pater noster*'s. The rosary is made up of flowers associated with Mary and, moreover, the majestic iris is the specific symbol of Mary as the queen of Heaven.[30] Given the form of an iris's leaves, which look like a double-edged sword, the plant is also seen as a reference to the passion of Christ and the sorrows of the Virgin.[31] While reciting the prayers of the rosary, the pious are called to reflect upon the sorrows of Mary's life, whose soul according to the prophet Simon was to be pierced by a sword (Luke 2:35). Moreover, as already mentioned, the *Pater Noster* beads of a rosary are associated with the wounds of Christ.

The Hours of the Virgin
The incipit of the Hours of the Virgin, the core text of a book of hours, was the most important opening of the manuscript.





7.
Book of hours and prayer book, Flanders or Brabant (?), *c.* 1500. Dim. 175 x 127 (102 x 70) mm. The Hague, MMW MS 10 F 14, fols. 11v-12r. Matins of the Hours of the Virgin, full-page miniature of the Tree of Jesse and miniature of the Annunciation.

This meant that extra attention was devoted to the border decoration. Strewn borders for the opening miniature at Matins showing the annunciation, contain flowers associated with Mary and the incarnation more frequently than other borders. The book of hours which was probably made for use in Maastricht, and whose calendar pages we have already mentioned, shows lilies and red roses for the Hours of the Virgin.[32] Both species are archetypal flowers for Mary and Jesus. The lily, rarely found in generic strewn borders, underscores the purity and virginity of Mary.[33] A book of hours from the region of Hainaut with grisaille miniatures includes Hours dedicated to the conception of the Virgin, accompanied by a depiction of Mary's conception in her mother Anne's womb while she is kneeling in prayer (ill. 6).[34] The carnations in the adjacent margin look ahead to the incarnation of Christ. Identification of other flowers in this border is not certain. The large flower at the bottom is perhaps a corncockle, known in medieval times as Christ's eye or Mary's rose.[35] The long branches with small flowers look somewhat like lavender. Perhaps they relate to Anne's happiness about her pregnancy and a Middle Dutch prayer to St. Anne contains seven metaphorical flowers, including lavender as the symbol of Anne's joy at the news that she is carrying Mary.[36]

Strikingly, the columbine appears frequently in borders accompanying the annunciation. The flower was seen as symbol of the Holy Spirit, who descends in the miniature towards Mary's womb in the form of a dove.[37] Columbines are also found in northern Netherlandish imitations of the Ghent-Bruges strewn borders in this context (ill. 4).[38] Petals of the columbine were associated with fluttering birds or doves, which explains why the Latin word for dove, *columba*, is recognizable in the flower's English name of columbine.[39] In a book of hours kept in Munich the annunciation is surrounded by a strewn border containing many different types of flowers, among which we find a striking white columbine that was painted to look as if a flock of white doves are fluttering with their heads together. The white colour makes the reference to the Holy Spirit indisputable.[40] In a book of hours now in Museum Meermanno/The House of the Book in The Hague we find a unicorn among the flowers, about to lay its head in the Virgin's lap (ill. 7). Somewhat farther to the left, below the annunciation miniature, we see a columbine prominently depicted.[41] Why was the columbine such a favourite, even more so than lilies or roses for Matins of the Hours of the Virgin? A possible explanation can be interpolated from a book of hours finished in 1508 by the French illuminator Jean Bourdichon, *Les Grandes Heures d'Anne de Bretagne*, in which the Latin name for col-





8.
Grandes Heures d'Anne de Bretagne, Jean Bourdichon, Tours, *c.* 1503-1508. Dim. 300 x 190 mm. Paris, BNF MS Lat. 9474, fol. 28r, detail. Part of Matins of the Hours of the Virgin, border decoration with columbine.

umbine is given as *Angelica* (see ill. 8).[42] This name, taken from the Latin word for angel, *angelus*, actually belongs to a different plant but was apparently used for both.[43] The columbine was consequently not only the symbol of the descending Holy Spirit but also of the archangel Gabriel who brought the divine message to Mary, as depicted in the annunciation miniature.

The connection between the flowers and the text or miniature is less evident in the other canonical hours of the Hours of the Virgin. The nativity, at Prime, and the annunciation to the shepherds, Terce, both of which took place during cold winter nights, are regularly accompanied by branches of acanthus leaves. However, I am not sure that the combination here was deliberate, as it is in the decoration of the winter months in the calendar (ill. 9).[44] In the minor Hours of the Virgin, Prime, Terce and Sext, the latter accompanied by an illustration of the adoration of the Magi, are frequently found with a border depicting rabbits encircled by a fence trimmed with red roses, suggesting a *hortus conclusus*, an enclosed garden. Rabbits represent fertility and given that the hymn '*Memento salutis*', that is repeated several times in the minor Hours of the Virgin, has the virgin birth as its theme, the enclosed rabbits probably refer to Mary's blessed fertility.[45] A strewn-flower border of March violets and heartseases or wild pansies accompanying the miniature of the annunciation to the shepherds can be interpreted as a reference to the humility of the Christ child who has just been born.[46] In the margins of the Presentation of Jesus in the Temple and the Circumcision, the most common illustrations for None in the Hours of the Virgin, we find white lilies more frequently than elsewhere. The presentation of the Christ child in the temple and the purification of Mary eight days after his birth were celebrated together in church liturgy on February 2, Candlemas, during which there was a procession with candles.[47] In this context, the lilies symbolize light and purity.[48] In contrast, the red roses for the Presentation or Circumcision symbolize Mary's sorrows and the passion of Jesus.[49] It was during Jesus's presentation in the temple that Simeon made his prophesy of the sword that would pierce through Mary's soul, and the circumcision is seen as the first of Jesus's sufferings.[50] Red roses accompanying Compline in combination with an illustration of the flight into Egypt in a relatively simple book of hours kept in The Hague may also refer to the Sorrows of Mary.[51]

Penitential psalms, the Office of the Dead, and suffrages

Turning to the penitential psalms, we find very few relevant flowers. The traditional illustration of King David repenting for his sin with Bathsheba is quite frequently accompanied by historiated borders with scenes from David's youth, for





9.
Book of hours and prayer book, Brabant (Antwerp?), c. 1490-1500, several full-page miniatures added later, circle of the Master of Charles V, ca. 1530-1540.

Dim. 162 x 110 (104 x 63) mm. The Hague, KB MS 134 C 47, fols. 41v-42r. Terce of the Hours of the Virgin, full-page miniature with the Annunciation to the Shepherds inserted opposite an existing miniature with the same subject.

10.
Book of hours for use in the diocese of Tournai, Hainaut, c. 1500.
Dim. 196 x 141 (120 x 75) mm. The Hague, KB MS 76 G 4, fols. 108v-109r. Office of the Dead, miniature with the Raising of Lazarus.

example his slaying of the giant Goliath or his triumphant reception by the women of Jerusalem. If the miniature shows Bathsheba bathing and David watching her from his palace window, the water in the miniature sometimes extends into the marginal decoration. In such cases, pots of decorative plants are placed at the edge of the fountain or pool.[52]

The Office of the Dead, the last major text of the book of hours, is frequently illustrated with the resurrection of Lazarus, alluding to hope of resurrection and eternal life. Another possible topic for images is the funeral bier in the church during the praying of the Office of the Dead on the night before the funeral and in the morning of the day of the funeral itself. The Office of the Dead is one of the texts that is accompanied by the most explicit symbolism in marginal decoration. Even when a book of hours has otherwise consistently 'neutral' borders, it will frequently include skulls or bones at the incipit of this section, sometimes combined with scrolls bearing warnings such as '*memento morieris*', remember you must die, or '*cogita morte*', be mindful of death.[53] A book of hours for Tournai use includes such texts in French: '*pensons à la morte*', let us think about death, and '*morir convient*', death shall come (ill. 10).[54] The text banderoles are wound around bare branches, heartseases and stocks.[55] Heartseases or wild pansies, *pensées* in French, with their purple colour are exemplary flowers for their association with memory and death. They are found frequently in strewn borders accompanying the Office of the Dead. Sometimes they dominate by their numbers, sometimes only by their placement, as is the case here where the 'pensées' are literally connected to the text '*pensons*', implying 'let us think about death and those who have died before us'. Heartseases were scattered over the grave in remembrance of the dead. The marginal decoration of a book of hours which was possibly illuminated in Cambrai illustrates all these associations (ill. 11).[56] On a strip of grass, presumably the graveyard, we see a coffin in which the deceased had been carried to the cemetery, encircled by the torches that would have been lit during the prayers of this Office. There is a spade to dig the grave, ropes to lower the corpse into it and shovels to cover it with earth after it had been lowered. On either side of the text there are heartseases drifting down on the coffin and the grave.[57]

The final part of a book of hours contains the *suffragia* or suffrages, prayers of intercession to individual saints. Most strewn borders in this section of a book of hours exhibit little symbolic relationship to the saint in question, and when they do, the symbolism is not in the flowers. For example, borders accompanying St. James the Great regularly contain scallop shells, associated with pilgrimage, and pilgrim staffs arranged in a decorative pattern.[58] A book of hours in Brussels contains borders with characteristics or attributes of a given saint. The marginal decoration for St. Sebastian consists entirely of bows and arrows; the border for St. Stephen contains a basket of stones between the flower heads; that for St. Roch, a dog carrying a piece of bread; St. Bernard's contains a devil; St. Francis's, birds; St. Catherine's, a wheel; and St. Margaret's, a dragon.[59] In the book of hours referred to above with the rosary of roses and irises in the margin (ill. 1), the border for the suffrage to St. Mary Magdalene is composed of jewellery and gems (ill. 12).[60] This particular manuscript does not contain miniatures, but Mary Magdalene is generally depicted in expensive clothing as a reference to the presumed sinful life she had led before her conversion. The jewels and pearls in the margin, which are painted in *trompe-l'oeil*, find their source in this iconography. Between the gems in the upper margin, we see a piece of jewellery in the form of a daisy and in the lower margin a pansy-shaped piece with leaves of white enamel and precious gems as its centre.[61] Natural and symbolically relevant flowers are found in some borders accompanying miniatures of St. Margaret as they are made up exclusively of daisies. Daisies, known in French as *marguerites*, refer to the name of this saint.[62] Since borders consisting of just one specific flower, such as daisies, produced an extremely pleasing effect, this technique was also applied to personages other than St. Margaret. For example, we find daisies framing images of St. Anthony Abbot or St. Adrian of Geraardsbergen in Flanders, presumably without any symbolic significance.[63] Purple and white violets (March violets), occurring in a border framing St. Catherine, may be an indication of her virtue of humility.[64] In all likelihood, an eye-catching lily in a strewn border surrounding St. Barbara refers to her purity and her desire to remain a virgin and become a bride of Christ, despite the opposition of her father Dioscuros.[65] Nonetheless, this interpretation is not limited to just one saint because the lily could just as well be used for Catherine and the violets for Barbara. These strewn borders are symbolically relevant to the text or image, or both, but their significance remains general in nature.

The meaning of the flowers

Having arrived at the final folia of a book of hours, we must conclude that even if many strewn borders surrounding the

11.
Book of hours, Hainaut (Cambrai?), *c.* 1500. Dim. 145 x 110 (95 x 55) mm. The Hague, KB MS 76 F 20, fol. 124 r. Office of the Dead, historiated initial with the Raising of Lazarus.

12.
Book of hours, 'Principal Associate' of Simon Bening, Bruges, *c.* 1510-1520. Utrecht, MCC ABM h11, fol. 140v. Suffrage to St. Mary Magdalene, framed by a border of jewels. The blank space was intended for a miniature of the saint that was not executed.

13. ▷
Book of hours and prayer book, Flanders or Brabant (?), *c.* 1500. The Hague, MMW MS 10 F 14, fols. 8v-9r. The month of December and the Hours of the Cross, miniature of the Crucifixion. The margin shows two women gathering the flowers strewn from above and a music-making company in a boat decorated with green leaves.

text or illustration appear to add a symbolic significance to either or both, the relationship is not always unequivocal and certainly not consistent. This is partly because flowers may have had more than one symbolic or practical meaning and partly because of the manner in which they were used in the margins. Possible interpretations differ from manuscript to manuscript and sometimes even from page to page. Certain border designs have symbolic meaning in some instances but not in others.

What is more, some borders seem to contradict themselves, such as in the book of hours in the collection of Museum Meermanno/The House of the Book, mentioned before (ill. 7).[66] The beginning of the Hours of the Cross is appropriately illustrated with a miniature of the crucifixion (ill. 13). In the margin, a man scatters heartseases as symbols of humility and grief that, as we have noted, are appropriate in the context of the crucifixion. Two women are gathering them into baskets. Does every flower that they place in their baskets symbolize a prayer? Or is the marginal decoration a reference to Palm Sunday when, according to tradition, flowers and unconsecrated hosts were scattered? Given that there are variants of this border in which the two women are seen collecting manna, we might even interpret the scattering of these heartseases as an implicit reference to the Eucharist, since the manna in the story of Exodus in the Old Testament was viewed by some as a prefiguration of the Eucharist.[67] In Bruges, it was the custom on festive occa-





sions to decorate houses and doors with carpets and sheets covered with flowers.[68] The curved top of the painted gold background in the outer margin suggests this part could be such a sheet. The man's high placement would then indicate that he is dropping a shower of flowers from a house or gate.

How are we to explain the boat decorated with green branches and filled with musicians dressed in finery in the lower margin? The boat was clearly borrowed from a calendar illustration of a May boat. Even if it does not include the usual fool, this section of the marginal illustration seems to be in complete contradiction with the rest of the page.[69] In Middle Dutch religious songs, however, the meaning of the decorated Maypole was altered to represent the crucified Christ as the pleasure of the worldly Maypole, which was fleeting, whereas the fruit of the cross brought eternal life to the faithful.[70] A page such as this one demonstrates once again that it is not always possible to discover the meaning of every strewn border, if indeed there is a meaning. It is clear, however, that many borders do have some symbolic meaning and that their interpretation not only requires a knowledge of medieval symbolism, but also of the manuscript's textual content, liturgical and devotional practices and cultural-historical customs, not to mention the working methods of the illuminators. Given that a book of hours was intended for personal devotion, the interpretation would also depend upon who would be using it. The borders are not unambiguous: quite the contrary, they are intended to be open to multiple interpretations. The marginal decoration plays a continuous game with reality in which a different aspect is emphasized at different times, sometimes it is an artistic flourish, sometimes an illusion, then again it may just be the decorative effect of attractive patterns or pleasing forms. And, then again, sometimes the margins contain flowers of meaning.



NOTES

[1] Like the previous chapter, this contribution provides only basic bibliographical references. Further information and illustrations can be found on various websites, for example https://www.kb.nl/bronnen-zoekwijzers/databanken-mede-gemaakt-door-de-kb/handschriften-kb-documentatie (search key: shelfmark between double quotation marks), for manuscripts kept in the Royal Library and Museum Meermanno/The House of the Book; *Medieval Illuminated Manuscripts*, http://manuscripts.kb.nl/ (cited as MIM) (consulted in March 2020). In addition I have made use of the database of the Byvanck working group (originally a standalone in The Hague, Royal Library, Special Collections, to be online accessible by its integration into the digital collecions of the RKD – Netherlands Institute for Art History in 2022-2025, see https://rkd.nl/en/projects-publications/projects/1161-medieval-miniatures-from-byvanck-to-the-rkd). For southern Netherlandish manuscripts, see A.M.W. As-Vijvers & A.S. Korteweg, *Splendour of the Burgundian Netherlands: Southern Netherlandish Illuminated Manuscripts in Dutch Collections*. Zwolle 2018.

[2] Given that this book is about the 'green' Middle Ages, I shall limit myself in this chapter to marginal decorations that contain flowers and plants. For other types of marginal decoration, see A.M.W. As-Vijvers, *Re-Making the Margin: The Master of the David Scenes and Flemish Manuscript Painting around 1500*. Turnhout 2013.

[3] In religious treatises, devotees (often female) were encouraged to tend their spiritual gardens and to plant them with flowers and plants that symbolized the virtues. See for example R.L. Falkenburg, *The Fruit of Devotion: Mysticism and the Imagery of Love in Flemish Paintings of the Virgin and Child, 1450-1550*. Amsterdam and Philadelphia 1994.

[4] A.M.W. As-Vijvers, 'Weaving Mary's Chaplet: The Representation and Meaning of the Rosary in Late Medieval Flemish Manuscript Illumination', in: K.M. Rudy & B. Baert (eds.), *Weaving, Veiling, and Dressing: Textiles and their Metaphors in the Late Middle Ages*. Turnhout 2007, pp. 41-79, esp. pp. 50-52.

[5] The Hague, Royal Library MS 133 E 14, fol. 42r; see MIM, loc. cit. (n. 1). The miniatures of this book of hours, which was probably made *c.* 1490 in Ghent, are related stylistically to Baltimore, Walters Art Museum MS W.439, that has been placed in the circle of the Ghent Associates; see A.S. Korteweg, in: As-Vijvers & Korteweg, op. cit. (n. 1), p. 209 n. 3; L.M.C. Randall, *Medieval and Renaissance Manuscripts in the Walters Art Gallery*, vol. III (2 parts), *Belgium, 1250-1530*. Baltimore and London 1997, part 2, pp. 423-436 (cat. no. 281), p. 563 colour pls. 40a-b, pp. 607-680 ills. 526-528, digitized at https://manuscripts.thewalters.org. On monochrome borders and grisaille effects, see chapter 13, 'Flowering Margins', by this author.

[6] Compare chapter 8 by Linda IJpelaar.

[7] As-Vijvers, op. cit. (n. 2), p. 192-193.

[8] For example, the marginal decoration in ill. 3, see below.

[9] The same holds true for children's games which are depicted in some calendar margins. The games portrayed reflect the games that were played over the course of the year according to the weather of the particular season. See A. Willemsen, 'The Game of the Month: Playful Calendars in Ghent-Bruges Books of Hours', in: B. Dekeyzer & J. Van der Stock (eds.), *Manuscripts in Transition: Recycling Manuscripts, Texts and Images: Proceedings of the International Congress held in Brussels (5-9 November 2002)*. Paris etc. 2005, pp. 419-430.

[10] Such as in The Hague, Royal Library MS 133 D 11, fol. 3r (March); compare n. 11 below.

[11] The Hague, Royal Library MS 133 D 11, fol. 7r and fol. 8r, respectively; these have been attributed to the Master of Morgan M.491, who belongs to the stylistic group of the Master of Charles V, by E. Morrison, 'Master of Charles V and Circle', in: T. Kren and S. McKendrick (eds.), *Illuminating the Renaissance: The Triumph of Flemish Manuscript Painting in Europe*. [Exhib. cat. Los Angeles, J. Paul Getty Museum and London, Victoria and Albert Museum]. Los Angeles 2003, p. 495; see further K.H. Broekhuijsen, in: As-Vijvers & Korteweg, op. cit. (n. 1), no. 65, pp. 231, 246, 365-366, and MIM, loc. cit. (n. 1). Cornflowers and poppies also accompany the month of August in other manuscripts.

[12] For example, The Hague, Royal Library MS 133 D 11, fol. 11r (October); compare n. 11.

[13] As-Vijvers, op. cit. (n. 2), pp. 139-140.

[14] For example, The Hague, Royal Library MS 133 D 11, fol. 13r (December); compare n. 11.

[15] Utrecht, Museum Catharijneconvent MS ABM h11, fols. 1r-1v (January) and fol. 2r (February); see As-Vijvers, in: As-Vijvers & Korteweg, op. cit. (n. 1), no. 81, pp. 296-297, 373-374, A.M.W. As-Vijvers, 'De marges in het middelpunt', in: W. van Welie & K. Broekhuijsen (eds.), *Gezien met eigen ogen. Topstukken uit de Middeleeuwen in Museum Catharijneconvent*. Amersfoort/ Brugge 2014, pp. 137-139; for illustrations and further references, see http://adlib.catharijneconvent.nl/ais54/search/simple.

[16] For example, The Hague, Royal Library MS 128 G 33, fol. 16r; see K.M. Rudy, 'Dirty Books: Quantifying Patterns of Use in Medieval Manuscripts Using a Densitometer', JHNA 2:1-2 (2010), https://doi.org/10.5092/jhna.2010.2.1.1, and MIM, loc. cit. (n. 1).

[17] For example, The Hague, Royal Library MS 133 D 11, fol. 18r; compare n. 11.

[18] For example, The Hague, Royal Library MS 134 C 47, fol. 7v; see A.M.W. As-Vijvers, in: As-Vijvers & Korteweg, op. cit. (n. 1), no. 82, pp. 298-299, 374, and MIM, loc. cit. (n. 1).

[19] The Hague, Museum Meermanno MS 10 E 3, fols. 34v-35r. Both the Master of the Musgrave Hours, who painted the Crucifixion, and the Calendar decorator of the Leber Hours, who was responsible for the strewn border, worked regularly with Simon Bening; see As-Vijvers, op. cit. (n. 2), p. 312; for further references and illustrations, see H. van Asperen, in: As-Vijvers & Korteweg, op. cit. (n. 1), no. 85, pp. 307-309, 375-376, S. Segal & K. Alen, *Dutch and Flemish Flower Pieces: Paintings, Drawings and Prints up to the Nineteenth Century*. Leiden/Boston 2020, vol. I p 127, and MIM, loc. cit. (n. 1).

[20] C.M. Fisher, *Flowers in Medieval Manuscripts*. London 2004, p. 24.

[21] See M. Stokstad & J. Stannard, *Gardens of the Middle Ages*. [Exhib. cat. Lawrence, Kansas, Spencer Museum of Art and Washington, Dumbarton Oaks Research Library and Collection]. Lawrence 1983, p. 102; S. Segal, *Flowers and Nature: Netherlandish Flower Painting of Four Centuries*. The Hague 1990, p. 36, p. 69 n. 51. The documentation on still lifes assembled by Segal was transferred to RKD in 2008 and can be consulted via the database RKD *Images*, see https://rkd.nl/nl/explore/images; in addition the entries 'genoffel' and 'nagelbloem' in the *Woordenboek der Nederlandsche Taal* (*WNT*), available online via the website of the Instituut voor Nederlandse Lexicologie via http://gtb.inl.nl/; Fisher, op. cit. (n. 20), p. 24; as well as the plant book *(Cruijdeboek*; p. 191-193), written by Rembert Dodoens (Rembertus Dodonaeus; 1517-1585) and *c.* 1552-1554 printed by Jan van der Loe in Antwerp. The book is illustrated with 715 woodcuts by Arnaud Nicolaï following designs of Pieter van der Borcht, available for consultation online via http://www.biolib.de/ and http://leesmaar.nl/; both websites provide scans of the copy which was coloured in for Hans Liefrinck in 1567 and is currently housed in the Rijksmuseum in Amsterdam, inv. no. RP-T-1948-118. Another copy is digitized on Google Books (https://play.google.com/store/books/details/Rembertus_Dodoens_Cruydt_boeck_in_den_welcken_die?id=2asDQs69L7YC) Dodoens's work was translated into English by Henry Lyte as *A new herball, or, Historie of plants…* and published in 1578; the (unillustrated) 1586 edition is online at https://www.biodiversitylibrary.org/item/30660#page/2/mode/1up, with the clove gillofer on p. 172 (second part, ch. vii). I thank Claudine Chavannes-Mazel for referring me to the work of Lyte.

[22] The paternoster beads are frequently represented as roses, often in combination with other flowers, for example carnations as in the print in the *Kerstenspiegel* (The Christian's Mirror) written by Dirk Coelde of Munster, printed in Delft by Jacob Jacobszoon van der Meer or Christiaen Snellaert between 1487 and 1488/1491 [ISTC-no. 00747350], The Hague, Royal Library, inc. 150 E 16, fol. 14r; see As-Vijvers, art. cit. (n. 4), pp. 56-57, ill. 17.

[23] Falkenburg, op. cit. (n. 3), p. 39; Segal, op. cit. (n. 21), p. 36 and Segal & Alen, op. cit. (n. 19), p 127.

[24] In addition to carnations and March violets, this border contains heartseases, that stand for

remembrance and through their colours, also refer to the Trinity; see Segal, op. cit. (n. 21), p. 25. There are forget-me-nots, whose meaning is implicit in their name, and common or gamander speedwell, which took away the darkness from the eyes; see Dodoens, op. cit. (n. 21), p. 31, and Lyte, op. cit. (n. 21), pp. 29-30 (first part, ch. xvi: 'germander').

[25] Utrecht, Museum Catharijneconvent, StCC h4, fol. 44r; see A.M.W. As-Vijvers, in: As-Vijvers & Korteweg, op. cit. (n. 1), no. 79, pp. 292-293, 371-372, and http://adlib.catharijneconvent.nl/ais54/search/simple.

[26] A.M.W. As-Vijvers, 'More than Marginal Meaning? The Interpretation of Ghent-Bruges Border Decoration', *Oud Holland* 116:1 (2003), pp. 3-33, esp. pp. 6-7; Fisher, op. cit. (n. 20), pp. 17-19.

[27] J. Tripps, 'Duccio's Maestà, Drei schwebende Engelchen und der Sieneser Dom als Erlebnisraum', *Mitteilungen des Kunsthistorischen Institutes in Florenz* 44:1 (2000), pp. 150-168, esp. p. 162; with thanks to Jan Van der Stock for the reference.

[28] For example, Baltimore, Walters Art Museum MS W.428, fol. 26r; see Randall, op. cit. (n. 5), vol. 2, pp. 474-480 (cat.no. 289), p. 566 ill. 43a, p. 611 ill. 539-540; for an illustration of fol. 26r, see https://manuscripts.thewalters.org.

[29] Utrecht, Museum Catharijneconvent, ABM h11, fol. 43r; see As-Vijvers, art. cit. (n. 15).

[30] Kindly pointed out by Sam Segal (1933-2018), whom I thank for his comments on an earlier version of this article.

[31] According to Dodoens, op. cit. (n. 21), p. 233, and Lyte, op cit. (n. 21), p. 215 (second part, ch. xxxv): ('[*Iris germanica*], his leaves be long and large, not much unlike the blade of a two-edged sword'; for the symbolic meaning, see G. Schiller, *Ikonographie der christlichen Kunst*, 5 vols. Gütersloh 1966-1991, vol. 1, p. 62.

[32] The Hague, Royal Library MS 133 D 11, fol. 25v; see n. 11.

[33] Schiller, op. cit. (n. 31), vol. 1, p. 62.

[34] The Hague, Royal Library MS 76 F 16, fol. 32r; see K.H. Broekhuijsen, in: As-Vijvers & Korteweg, op. cit. (n. 1), no. 58, pp. 232, 241, 361, and MIM, loc. cit. (n. 1).

[35] For these names of corncockle (*Agrostemma githago*), see Dodoens, op. cit. (n. 21), p. 194, and Lyte, op. cit. (n. 21), pp. 176-177 (second part, ch. ix): 'These kind of floures are called [...] in English Rose Campion; in French *Oeillets*, and *Oeillets Dieu*; in high dutch Margenroszlin, and Marien rosen, and accordingly they are now called in Latin Rosa mariana, in base Almaign they are most commonly called Christus ooghen.'

[36] This prayer is found, for example, in a prayer book from *c.* 1490, illuminated by the Masters of the Dark Eyes, kept in The Hague, Royal Library MS 135 E 19, fols. 20r-27v; see K.H. Broekhuijsen, 'Bloemen voor Anna. Een bijzondere verluchtingscyclus in gebeden tot de heilige Anna', in: J.A.A.M. Biemans et al. (eds.), *Manuscripten en miniaturen. Studies aangeboden aan Anne S. Korteweg bij haar afscheid van de Koninklijke Bibliotheek*. Zutphen 2007, pp. 59-73, esp. p. 64; on the manuscript see also K.M. Rudy, *Postcards on Parchment: The Social Lives of Medieval Books*. New Haven 2015, pp. 171-173, figs. 146-147, and K.H. Broekhuijsen, *The Masters of the Dark Eyes: Late Medieval Manuscript Painting in Holland*. Turnhout 2009, pp. 167-170, cat.no. 34, and MIM, loc. cit. (n. 1).

[37] They are not often found in the Hours of the Holy Spirit, where one would expect columbine.

[38] The Hague, Royal Library MS 130 E 5, fol. 14v, see A.S. Korteweg, 'Framing the Issues: A Codicological Approach to Dutch Border Decoration', in: J.F. Hamburger and A.S. Korteweg (eds.), *Tributes in Honor of James H. Marrow: Studies in Painting and Manuscript Illumination of the Late Middle Ages and Northern Renaissance*. London/Turnhout 2006, pp. 301-310, 625-626, esp. pp. 309-310; *The Golden Age of Dutch Manuscript Painting*. [Exhib. cat. Utrecht, Rijksmuseum Het Catharijneconvent and New York, the Pierpont Morgan Library]. Stuttgart and Zurich 1989, pp. 297-298, no. 106; MIM, loc. cit. (n. 1). The motif in the manuscript is repeated for the depiction of the Adoration of the Magi (fol. 47v). On the style of the illuminators, the Masters of the Suffrages, see A.M.W. As-Vijvers, 'Manuscript Production in the Monastery of St Hieronymusdal in Lopsen, near Leiden', *Oud Holland* 134:2/3 (2021), pp. 69-100, and *The Golden Age*, op. cit., p. 285-288; M. van Delft & E. van der Vlist, 'Het geïllustreerde boek in Leiden', in: C. Vogelaar et al. (eds.), *Lucas van Leyden en de Renaissance*. [Exhib. cat. Leiden, Museum De Lakenhal in cooperation with the Rijksmuseum Amsterdam]. Antwerp 2011, pp. 177-187, 194, esp. pp. 183-187, with bibliography.

[39] Fisher, op. cit. (n. 20), p. 33.

[40] Munich, Bayerische Staatsbibliothek, Clm 23637, fol. 48v; see As-Vijvers, op. cit. (n. 2), pp. 303-318, 415-419, 703-705 ill. 119-123; for the Annunciation framed by a border of white columbines, see As-Vijvers, art. cit. (n. 26), ill. 12.

[41] The Hague, Museum Meermanno/The House of the Book MS 10 F 14, fol. 12r; see K.H. Broekhuijsen, in: As-Vijvers & Korteweg, op. cit. (n. 1), no. 62, pp. 238-239, 363-364, and MIM, loc. cit. (n. 1). The entire opening, including the full-page miniature of the Tree of Jesse which contains a second Annunciation (fol. 11v), is full of symbolism.

[42] Paris, Bibliothèque Nationale de France MS Lat. 9474, fols. 28r, 42r and 61v, produced in Tours, ca. 1503-1508; see *Great Hours of Anne of Brittany*. [Facsimile edition with commentary]. M.-P. Lafitte (ed.), Barcelona 2010; for illustrations, see also https://gallica.bnf.fr/ark:/12148/btv1b550093038/f45.planchecontact.r=Lat; on Bourdichon: N. Reynaud, 'Bourdichon, Jean', in: *Grove Art Online*, www.oxfordartonline.com. The Latin name of the columbine is *Aquilegia*, see Dodoens, op. cit. (n. 21), pp. 204-205, and Lyte, op. cit. (n. 21), pp. 184-185 (second part, ch. xvi).

[43] The same name is also found in New York, Morgan Library & Museum MS M. 732, fol. 5r, see http://corsair.themorgan.org. The plant with the Latin name *Angelica* is described by Dodoens, op. cit. (n. 21), pp. 328-329, and Lyte, op. cit. (n. 21), pp. 336-337 (second part, ch. cvii). In French, German, English and Latin, this plant is also called holy spirit's root; see H. Kleijn, *Planten en hun naam*. Amsterdam 1970 (keyword Angélica), which can be consulted online via http://etymologiebank.nl, compiled by N. van der Sijs, 2010.

[44] For example, The Hague, Royal Library MS 134 C 47, fol. 41v, compare n. 18; The Hague, KB MS 128 G 32, fols. 75v-76r, see B. Brinkmann, *Die Flämische Buchmalerei am Ende des Burgunderreichs. Der Meister des Dresdener Gebetbuchs und die Miniaturisten seiner Zeit*. 2 vols. Turnhout 1997, vol. 1, pp. 59-60, n. 78, and MIM, loc. cit. (n. 1); The Hague, Museum Meermanno/The House of the Book MS 10 F 14, fol. 25v, compare n. 41. Among the acanthus leaves in the first two manuscripts we find wild pansies and strawberries, both of which are associated with Jesus's humility in becoming human.

[45] As-Vijvers, art. cit. (n. 26), pp. 17-18.

[46] For example, The Hague, Royal Library MS 133 D 18, fols. 87v-88r; see K.M. Rudy, *Rubrics, Images and Indulgences in Late Medieval Netherlandish Manuscripts*. Leiden/Boston 2017, pp. 65-66 n. 21, and MIM, loc. cit. (n. 1).

[47] Schiller, op. cit. (n. 31), p. 101; E. Duffy, *The Stripping of the Altars: Traditional Religion in England 1400-1580*. New Haven/ London 1992, pp. 15-22.

[48] Schiller, op. cit. (n. 31), p. 62.

[49] For example, The Hague, Royal Library MS 134 C 47, fol. 49r; compare n. 18.

[50] Schiller, op. cit. (n. 31), p. 99.

[51] The borders in this book of hours, The Hague, Royal Library MS 133 D 18, may be interpreted symbolically to a great extent: a shower of flowers for Pentecost (fols. 25v-26r), lilies and Mary roses (corncockle) for the Virgin and Child as illustration for the Marian mass (fols. 32v-33r), acanthus leaves, roses and heartseases for the Nativity (fols. 80v-81r), a combination of March violets and heartseases for the Annunciation to the Shepherds (fols. 87v-88r; compare n. 46) and red and white roses for the Flight into Egypt (fols. 12v-16r); for illustrations, see MIM, loc. cit. (n. 1).

[52] For example, Baltimore, Walters Art Museum MS W. 428, fol. 133r; compare n. 28; and a book of hours in a private collection; see A.M.W. As-Vijvers, *Tuliba Collection: Catalogue of Manuscripts and Miniatures from the Fifteenth and Sixteenth Centuries*. Hilversum 2014, p. 174 ill. 6.

[53] For example, The Hague, Museum Meermanno/The House of the Book MS 10 E 3, fols. 145v-146r; compare n. 19.

[54] The Hague, Royal Library MS 76 G 4, fols. 108v-109r, see MIM, loc. cit. (n. 1). The text and the pen-flourished initials in this book of hours appear to have been made a few decades earlier than the painted decoration.

[55] Stocks (*Matthiola incana*); also called white violets because of their whitish leaves, see

Dodoens, op. cit. (n. 21), p. 189, and Lyte, op. cit. (n. 21), pp. 168-170 (second part, ch. iv: 'stocke gillofers').

[56] The Hague, Royal Library MS 76 F 20, fol. 124r; see MIM, loc. cit. (n. 1).

[57] In the book of hours The Hague, Royal Library MS 128 G 34, fol. 86r, skulls, bones and coffins are used as scattered motifs, and in The Hague, KB MS 133 E 14, fols. 154v-155r (compare n. 5), mourners fly like ghosts in the margins; for illustrations, see MIM, loc. cit. (n. 1).

[58] An early example can be found in the Hours of Charlotte de Bourbon-Montpensier: Alnwick Castle, Collection of the Duke of Northumberland, DNP MS 482; see J. Backhouse, 'The Hours of Charlotte de Bourbon at Alnwick Castle', in: B. Cardon et al. (eds.), *Als Ich Can. Liber amicorum in Memory of Professor Dr. Maurits Smeyers*, 2 vols., Paris etc. 2002, pp. 71-90, esp. p. 77 ill. 4; *Illuminating the Renaissance*, op. cit. (n. 11), pp. 199-202, no. 44; L. De Kesel, 'Use and Reuse of Manuscripts and Miniatures: Observations on Pasted-In, Recycled and Removed Miniatures and Text Leaves in Some Late Medieval Flemish Illuminated Manuscripts Related to *La Flora*', *Bulletin du bibliophile* 2011 no. 1, pp. 48-85, esp. pp. 50-51. An illustration of this manuscript – but not the scallop border – is given in chapter 13 'Flowering Margins'. For other scallop borders, see As-Vijvers, op. cit. (n. 2), pp. 143-145; H. van Asperen, *Pelgrimstekens op perkament. Originele en nageschilderde bedevaartssouvenirs in religieuze boeken (ca 1450-ca 1530)*. Nijmegen 2009, pp. 233-236.

[59] Brussels, Royal Library of Belgium MS IV 280, fols. 215v, 216v, 221r, 225v, 227r, 231r, 232v resp.; see *Quinze années d'acquisitions, de la pose de la première pierre à l'inauguration officielle de la Bibliothèque*. [Exhib. cat. Brussels, Royal Library]. Brussels 1969, pp. 138-140 (cat. no. 111); L. De Kesel, *Een bijdrage tot de studie van de laatste bloeifase van de Vlaamse miniatuurkunst. Het manuscript IV 280 van de Royal Library te Brussel*. [unpublished Master's Thesis Rijksuniversiteit Gent] 1985; As-Vijvers, art. cit. (n. 26), pp. 15-16, ill. 13.

[60] Utrecht, Museum Catharijneconvent MS ABM h11, fol. 140v; compare n. 15.

[61] Compare K. Challis, 'Marginalized Jewels: The Depiction of Jewellery in the Borders of Flemish Devotional Manuscripts', in: M.M. Manion & B. Muir (eds.), *The Art of the Book: Its Place in Medieval Worship*. Exeter (Devon) 1998, pp. 253-269.

[62] Dodoens, op. cit. (n. 21), p. 209, and Lyte, op. cit. (n. 21), pp. 188-190 (second part, ch. xix). For margins with daisies in combination with Margaret, see As-Vijvers, art. cit. (n. 26), p. 13, ill. 10; also As-Vijvers, op. cit. (n. 52), p. 253 ill. 2 (a full-page miniature that formerly was part of the Hours of Cardinal Albrecht van Brandenburg, see *The Hours of Albrecht of Brandenburg, Illuminated Manuscript by Simon Bening*. [Auction cat. London, Sotheby's, 19 June 2001]; currently Liechtenstein, private collection.

[63] The Hague, Royal Library MS 134 C 47, fol. 82r (Anthony), see n. 18; The Hague, Museum Meermanno/The House of the Book MS 10 E 3, fol. 214r (Anthony), see n. 19; The Hague, Meermanno/The House of the Book MS 10 E 4, fol. 97r (Adrian), see A.M.W. As-Vijvers, in: As-Vijvers & Korteweg, op. cit. (n. 1), no. 80, pp. 294-295, 373, and MIM, loc. cit. (n. 1).

[64] The Hague, Museum Meermanno/The House of the Book MS 10 E 4, fol. 99v; compare n. 63.

[65] The Hague, Museum Meermanno/The House of the Book MS 10 E 3, fol. 218v; compare n. 19.

[66] The Hague, Museum Meermanno/The House of the Book MS 10 F 14, fol. 9r; compare n. 41.

[67] Borders depicting the scattering of flowers or coins along with unconsecrated hosties or manna are called 'largesse' borders; see As-Vijvers, art. cit. (n. 26), pp. 5-7; As-Vijvers, op. cit. (n. 2), p. 151.

[68] See *Is Brugge groot?*, C. de Haan and J. Oosterman (eds.), Amsterdam 1996, pp. 61-62; A. Janssens, *Middeleeuws Brugge. Door de ogen van Hans Memling (1465-1494)*. Leuven 2012, p. 138, p. 251 n. 6.

[69] Written on the red canopy of the little boat are the letters 'senkho' or 'senkao', which has yet to be explained.

[70] J. Oosterman, 'Ik breng u de mei. Meigebruiken, meitakken en meibomen in Middelnederlandse meiliederen', in: B. Baert & V. Fraeters (eds.), *Aan de vruchten kent men de boom. De boom in tekst en beeld in de middeleeuwse Nederlanden*. Leuven 2001, pp. 167-189, esp. pp. 174-178.

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A HAND-WRITTEN TEXT FROM LATE ANTIQUITY IN THE LEIDEN UNIVERSITY LIBRARY

THE WONDERS OF PLANTAIN IN APULEIUS PLATONICUS'S HERBARIUM, LEIDEN, UB MS VLQ 9

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600*. Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_APPI

Abstract
The earliest extant copy of Apuleius Platonicus' Herbarium, also called the pseudo-Apuleius *complex,* is kept in Leiden University Library (MS VLQ 9). It dates from the late sixth century and has late-antique illustrations at the beginning of each plant. Here are both a transcription and a modern English translation of the text of the first plant, the *plantago major* (plantain). The Latin text was first published by Gabriel Humelberg in 1537. Twenty-six remedies are given of the plantain, with an explanation of how to use which part of the plant: Against headache: tie the root of the plant under the chin, or against worms: place the finely ground plant on the navel.

Keywords: Leiden UL VLQ 9, Apuleius Platonicus Herbarium English translation of Plantago

In this appendix we will transcribe and translate the first chapter of Apuleius Platonicus Herbarium.

p. 301 ◂
The Hague MMW 10 F 14, f 9r: detail of ill. 13.

Introduction to the Leiden Apuleius Platonicus *Herbarium*, VLQ 9

The Leiden University Library holds the oldest surviving manuscript of the Apuleius Platonicus *Herbarium* under the shelf mark *Vossius Latinus Quarto* 9 (VLQ 9). This shelf mark indicates that it is a manuscript from the seventeenth-century collection of Isaac Vossius. The Latin text is number 9 of the quarto-format series. It was hand-copied in Italy in the late sixth century in the common Latin book script of the time, the uncial. Over the course of the fourth century this new book-hand had been developed for Greek and Roman literature. The Leiden Apuleius belongs to a group of illustrious late Antique codices from the fifth and sixth century, which are still extant.[1] The most famous early Latin manuscripts in uncial script are the Virgilius Vaticanus (Vatican City, Biblioteca Apostolica, Cod. Vat. lat. 3225), the Vergilius Romanus (Vatican City, Biblioteca Apostolica, Cod. Vat. lat. 3867) and the unillustrated Vergilius Augusteus (fragments divided between the Vatican Library MS Vat. lat. 3256, and Berlin, SB MS lat. fol. 416). The earliest examples of vellum uncial Greek manuscripts, which have survived practically entire, are three great codices of the Bible: the Codex Vaticanus, which in 1809 Napoleon brought as a victory trophy to Paris, (Vatican City, Biblioteca Apostolica, Cod. Vat. gr. 1209), the Codex Sinaiticus (London, BL Add MS 43725 and the Codex Alexandrinus (London, BL Royal MS 1 D VIII).

As was common practice at that era, texts were written without spaces or punctuation.[2] Readers of the time had no problem with such a convention, but later readers would have found texts written in this script to be an unbroken succession of almost unreadable letters, which makes it a daunting task to determine where one word ends and another begins. In the late eighth century the uncial was replaced by a different letter type, the Carolingian minuscule. This latter font consists of lowercase letters with ascenders and descenders. Capital letters that were used for initials and headings and to mark the beginning of a sentence, continued to be written in uncial forms. Gradually, spaces between words became common. As a consequence, Carolingian script is easier to read, easier for us, too, because the modern printed letter, known as the Roman letter, dates back to this font from the time of Charlemagne.

But back to the Leiden herbarium written in uncial. After this font was no longer in active use, there were still scholars who were eager to read the books inscribed in uncial because of their content. But like us, they often found them difficult because they were no longer used to the old capitals and they missed the spaces between words. That explains why in this manuscript, centuries later, vertical lines were placed between words in these old texts. Sometimes punctuation was also added, the Latin was corrected if necessary and

above words that had faded over time or had become illegible, text was written to support legibility.

The first chapter of the Apuleius Platonicus herbarium: *plantago*, VLQ 9

A transcription of the brief introduction and description of the first plant in the Apuleius Platonicus follows below, as we find them in the Leiden manuscript VLQ 9.[3] The plant description has to do with the well-known *arnoglossa*, *plantago*, or plantain, which seemed to be effective for the treatment of more than 25 maladies. The words that were written in red ink have been underlined here in the transcription. The transcription is followed by a translation in English.[4]

The last line of text on folio 19recto of the manuscript indicates the beginning of the Apuleius Platonicus:

Incipit herbarium apulei platonici traditum a chirone centauro magistro achillis

'This is the beginning of the herbarium of Apuleius Platonicus, passed on by the centaur Chiro, teacher of Achilles'.

I.
TRANSCRIPTION OF VLQ 9 FOLS. 19V-22V
ILLS. 1-4

>fol. 19v:

Apuleiu[s] Platonicus ad ciues suos

ex pluribus paucas uires herbarum / et curationes corporis ad fidem ue / ritatis monumentis publicis traditi / ut stupiditate uerosa pror [corrected as f] essionis / quod dicimus quod medicorum uen / ditationis potius quam curas etiam hos / homines inertiam plerumque et in/ peritia [n]exus certe lucrepetans viros / nunc cupari qui etiam a mortuis merce / dem expetunt. quid agant nihil

Expectant enim occasionem et faciunt / reditus dum tempus curationum extra / hant puto quia seuerioribus ipsis mor / bis sint exitum proponamus igitur / remediorum titulos quos vel nunc / vel maxime tempus conducit et civibus / meis sociis quidem et peregrinis quibus / vexatio acciderit aliqua corporalis nos / tra litterata scientia inuitis etiam me / dicis profuisse videatur



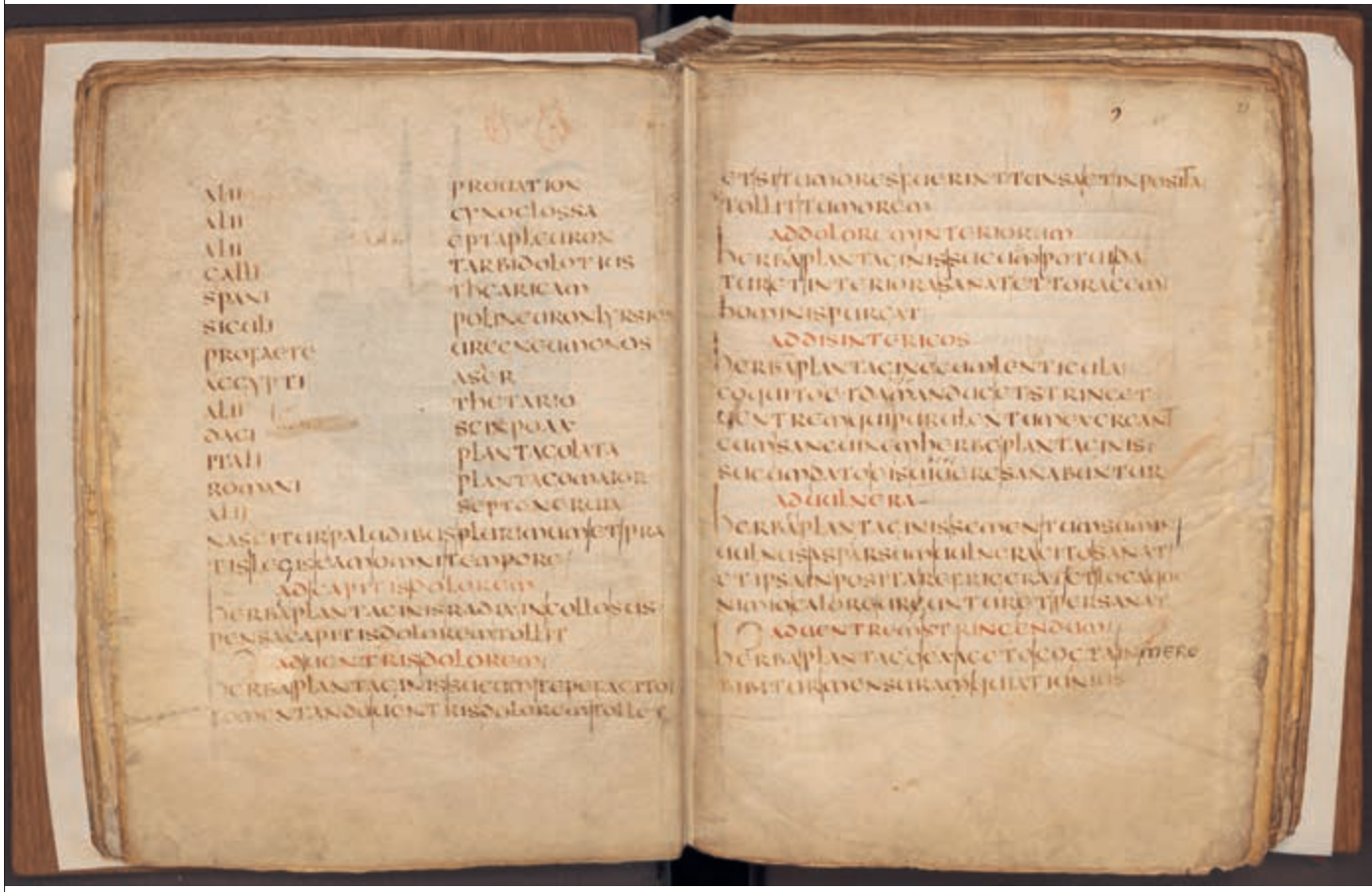
>fol. 20r: *illustration plantain*

Herba	***arnoglossa***
A Graecis dicitur	*arnoglossus*
alii	*hermion*
>fol. 20v:	
alii	*provation*
alii	*cynoglossa*
alii	*eptapleuron*
Galli	*tarbidolotius*
Spani	*thearicam*
Siculi	*polineuron lyrsion*
profaete	*vire gneumonos*
aegypti	*aser*
alii	*thetario*
Daci	*scinpoax*
Itali	*plantagolata*
Romani	*plantago maior*
alii	*septeneruia.*

Nascitur paludibus plurimum et pratis legis eam omni tempore.

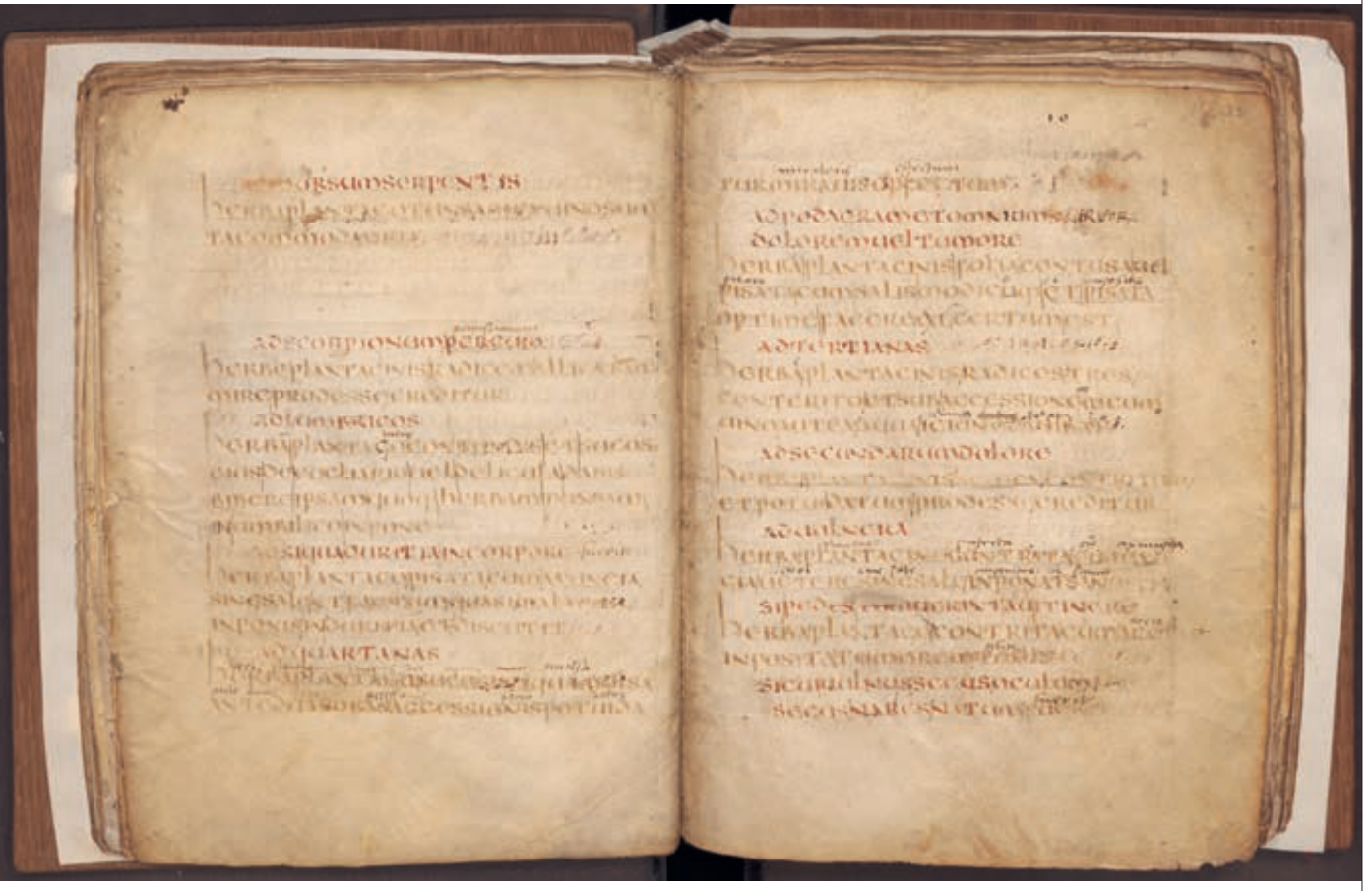
Ad capitis dolorem.
Herbae plantaginis radix in collo suspensa capitis dolorem tollit.

Ad uentris dolorem.
Herba plantaginis sucum tepefacito fomentando uentris dolorem tollet, >fol. 21r: et si tumores fuerint, tunsa et inposita tollit tumorem.
Ad dolorem interiorum.
Herbae plantaginis sucum potui datur et interiora sanat et toracem hominis purgat.
Ad disintericos.
Herbam plantaginem cum lenticula coquito et da manducet stringet uentrem. qui purulentum excreant cum sanguinem. Herbe plantaginis sucum dato eis vivere (changed to bibere, CCM), sanabuntur.
Ad uulnera.
Herbae plantaginis semen tumsum in uulneis asparsum, vulnera cito sanat, et ipsa inposita refrigerat et loca, que nimio calore ur[g]untur, et persanat.
Ad uentrem stringendum.
Herba plantago ex aceto cocta in mero bibitur mensuram quiati unius. >fol. 21v:
Ad morsum serpentis.
Herba plantago te insam ex uino et sumpta commoda erit.
Ad scorpionum percum.
Herbae plantaginis radicem adligatam mire prodesse creditur.



Ad lumbricos.
Herbam plantago contundis et sucos eius de cocliario uel deligula dabis bibere, ipsam quoque herbam tunsam in umbilico inpone.
Si qua duritia in corpore [fuerit].
Herba plantago pisata cum axungia sine sale et factum quasi malagma, inponis in duritia et discutit.
Ad quartanas.
[Herbae plantaginis sucus in aqua mulsa] ante duas oras accessionis potui da >fol. 22r: tur, mirauis effectum.
Ad podagram et omnium neruorum dolorem uel tumore.
Herbae plantaginis folia contusa uel pisata cum salis modicum et pisata optime facere et certum est.
Ad tertianas.
Herbae plantaginis radices tres conterito et sub accessionem cum uino aut ex aqua ieiuno da, bibat.
Ad secundarum dolore.
Herbae plantaginis semen contritum et potui datum prodesse creditur.
Ad uulnera.
Herba plantagine contrita, cum axungia uetere sine sale imponat, sanus.
Si pedes tumuerint au itinere.

Herba plantago contria, cum aceto inposita tumorem tollit.
Si ulcus secus oculum secus narum natum fuerit.
>fol. 22v: Herbae plantaginis sucos expressos contusos et lanam mollem suco madefactam inponat per dies viiii, sanus fiet.
Ad disentericos etiam torminosos.
Herbae plantaginis semen tritum pro polenta in uino calido vibat, et, sanus er.
Ad parotidas.
Herba plantago cum axungia uetere pisata et inposita persanat.
Ad ulcera oris.
Herbae plantaginis sucos in ore tenuntur vel folia eius commanducantur.
Ad fistulas sanandas.
Herba plantaginis sucos fistulis infunditur et mittitur eisdem.
Ad canis ravidi morsum.
Herba plantago contusa et inposita facillie sanat
Adversus uesicae difficultates.
Herba plantaginis folia uel radices pote ex passo, fortiter medetur.



II.
TRANSLATION OF THE INTRODUCTION
(VLQ 9 FOL. 19V)

'Apuleius Platonicus, to his fellow citizens.
From many publicly available documents, we have compiled a list of powerful effects of herbs and medical treatments of the body according to my belief in the truth and due to the proverbial stupidity of the members of this profession, we have kept the list short and to the point. We must state that almost all the physicians' success stories are more important than their treatments. Also, that they are frequently men who are lax and inexperienced who certainly have done all it takes to become known as true profit seekers, who expected payment sometimes even from the dead. What do they do? Nothing. They wait for the opportunity and make profit while extending the time of treatments. In my opinion they are more malicious than the illness itself. Let us therefore openly present the names of the medicines, which is what takes the most time, so that the knowledge from books is available to my fellow citizens, friends and strangers, who may be afflicted by a given physical ailment, and may find it useful, even if it is against the will of the doctors.'[5]

p. 309 ▸▸
Deventer AB E 45 2000 KL, chapter 277, *Mandragora femina*, det.of illustration on p. 303.

II.
PLANTAIN TRANSLATION
(VLQ 9, FOLS. 20R-22V)

'PLANTAIN
The Greeks call the plant *arnoglossa*, *arnion*, *probateion*, *cinoglossa* or *eptapleuron*, the French *tarbidolotius*, the Spanish *tetharica*, the Sicilians *polineuron* or *tirsion*, the poets *ura egneumonos*, the Egyptians *asaer,* others *thetarion*, the Daciers



sipoax, the Italians *plantago lata*, the Romans *plantago major*, or *septenervia*.

Plantain grows primarily in swamps and fields, it can be found at all times.

1. For headache: Tie the root of the plant under the chin and the pain will disappear.
2. For stomach ache: the juice of plantain, made lukewarm through heating, calms stomach ache, and if there are swellings, finely ground plantain placed on the swellings makes them disappear.
3. Intestinal ailments: the juice of plantain in the form of a drink is good for the intestines and clears the chest.
4. For those with dysentery: plantain cooked with lentils and given to the sufferer will shrink a swollen belly. For those who spit up pus with blood: they will be healed with the juice of plantain as a drink (in VLQ 9, 4 and 5 are merged, CCM).
6. For wounds: finely ground plantain seeds, spread over the wound quickly heals, and the plant itself, finely ground and applied to badly burned areas, cools and completely heals.
7. To shrink a swollen stomach: the plantain must be cooked in vinegar and drunk with pure wine. A dose of one cupful is enough.
8. For snakebites: plantain, mashed fine in wine and drunk will bring relief.
9. For scorpion stings: the root of plantain, bound to the wound is believed to be miraculously good.
10. Against worms: grind the plant fine and administer the juice with a spoon or a scoop or place the finely ground plant itself on the navel.
11. If there is something hard in the body: plantain crushed with fat and without salt applied as a compress on the hard spot will make it disappear.
12. Against the quartan or fourth-day fever: administer the juice of plantain as a drink with honeyed water two hours before the attack of fever; the effect is remarkable.
13. Against gout and all painful or swollen nerves: finely ground or mashed plantain leaves with a bit of salt will certainly be effective.
14. Against the tertian or third-day fever: administer three crushed roots to the patient on an empty stomach during the attack; it must be drunk with wine or water.
15. For recurrent pains: it is believed that the seed of the plantain, finely ground and administered as a drink, is useful.
16. For wounds: finely ground plantain applied with some old, unsalted lard affords healing.
17. If the feet are swollen from travelling: finely ground plantain, applied with some vinegar, will make the swelling disappear.
18. In cases of sores around the eyes or nose: press the juice obtained from finely ground plantain onto a linen cloth and place the juice on the sores for nine days to cure them.
19. For those suffering from dysentery or severe stomach cramps: the seeds of plantain are finely ground and boiled and given as a drink with warm wine: this will assure healing.
20. For painful salivary glands: plantain, crushed and applied with old lard provides healing.
23. For sores in the mouth: the juice or boiled leaves of plantain must be held in the mouth.
24. To heal sores: the juice of plantain is poured on the sores.
25. To treat the bite of a rabid dog: finely ground plantain applied to the spot of the bite will heal the wound quickly.
26. For urinary problems: leaves or roots of plantain drunk with sweet wine offer a powerful cure.'

Conclusion

It is striking that the author opens with an unequivocal attack on the medical world, arguing that doctors are not only stupid but that they use too many words, are only out for money and are therefore crueller than the diseases themselves. He, the author who calls himself Apuleius Platonicus, will do his best to provide his fellow citizens with knowledge in keeping with the truth. The subsequent chapter on *plantago* or plantain reads as a description of an extraordinary miracle drug. It would seem that plantain can cure all problems, both internal and external. Whether it be the bite of a rabid dog, a scorpion sting, stomach aches, swollen feet or sores around the eyes, plantain offers relief.

The plant remained extremely popular through the centuries, both in herbaria and in literature. Chaucer and Shakespeare speak of plantain and refer to its healing powers.[6] In the eighteenth century, William Shenstone (1714-1763) writes in his book *Schoolmistress*: 'And plantain rubb'd that heals the reaper's wound'. And when we, in the twenty-first century, look at the putative or proven claims of the effects of plantain, it is remarkable that not much has changed. In the discussion on plantain in a recent publication on edible wild plants, the following is written: 'All members of the plantain family have an antibacterial and cleansing effect and are refreshing. The ribwort plantain is used externally for wounds, inflammation of the skin, burns, swellings and insect bites'.[7] The plant is also recommended for eye infections, mouth and throat inflammations, gastric mucosa inflammations of the skin, irritable bowel syndrome, urinary tract infections and upper respiratory tract complaints. The only modern addition to treatments with the greater plantain is the following: 'If plantain is added to tobacco, it is helpful to wean the smoker from his habit'.[8] Not much has changed.

NOTES

[1] E.A, Lowe (ed.), *Codices Latini antiquiores: A Palaeographical Guide to Latin Manuscripts Prior to the Ninth Century*. Oxford 1934-1971. 12 vols. Online: *Earlier Latin Manuscripts*: https://elmss.nuigalway.ie.

[2] See B. Bischoff, *Latin Palaeography: Antiquity and the Middle Ages*. D.Ó. Cróinín & D. Ganz (transl.), Cambridge 1990, esp. pp. 66-72. The uncial is a capital script in which some letters have a different form, notably *a, d, e, h* and *m*. For the description of VLQ 9, see K.A. de Meyier, *Codices Vossiani latini II Codices in Quarto*. Leiden 1975, pp. 20-25. The manuscript is online.

[3] The numbers in the translation of the text refer to the Latin edition of E. Howard & H.E. Sigerist (eds.), *Antonii Musae de herba vettonica liber – pseudoapulei herbarius – Anonymi de taxone liber – sexti placiti liber medicinae ex animalibus etc., Corpus medicorum latinorum IV*. Leipzig / Berlin 1927.

[4] There is no modern English translation of the Latin herbarium of the fourth century. An English translation of the Anglo-Saxon text, dating from the tenth century, was published first in 1864 (T.O. Cockayen, *Leechdoms, Wortcunning and Starcraft of Early England: Being a Collection of Documents, for the Most Part Never before Printed, Illustrating the History of Science in this Country before the Norman Conquest*, vol. 1; online https://archive.org/details/leechdomswortcun01cock); in 2002, Anne van Arsdall made a recent translation: *Medieval Herbal Remedies: The Old English Herbarium and Anglo-Saxon Medicine.* NewYork/London. The remedies of the plantain can be found on pp. 142-144. A proper French translation was the focal point of an in-depth dissertation by M. Pradel-Baquerre, *Ps-Apulée, Herbier, introduction, traduction et commentaire*. Montpellier 2013, which she published in 2018: M. Pradel-Baquerre (ed. & transl.) *Herbier, précédé du Traité sur la betoine d'Antonius Musa: D'après le Manuscrit H227, Montpellier*. Montpellier 2018 (Savoirs Anciens et Médiévaux 5). Kai Broderson published the Latin text next to a German translation in 2015 (K. Brodersen, *Apuleius. Heilkräuterbuch Herbarius*. Wiesbaden 2015).

[5] The Latin transcription of the introduction in VLQ 9 contains some mistakes. Therefore, the translation is based upon the edition as published by Howard & Sigerist (n. 3), p. 15.

[6] Chaucer, *The Canon's Yeoman's Tale*, prologue (VIII 579-581); Shakespeare, *Romeo and Juliet*, 1.2.51-2; *Two Noble Kinsmen*, I, ii; *Love's Labour's Lost*, iii, i. See also V. Thomas & N. Faircloth, *Shakespeare's Plants and Gardens: A Dictionary*. London 2014, p. 268 and S. Iyengar, *Shakespeare's Medical Language: A Dictionary*. London 2014, 'plantain'.

[7] S.G. Fleischhauer, J. Guthmann & R. Spiegelberger, *Essbare Wildpflanzen. 200 Arten bestimmen und verwenden*. Baden & München 2007, p. 15: *Plantago lanceolata* L.

[8] Fleischhauer, Guthmann & Spiegelberger, op. cit. (n. 7), p. 109: *Plantago major* L.

ABOUT THE AUTHOR

Claudine A. Chavannes-Mazel (1949) studied Art History and Palaeography/Codicology at Leiden University and earned her Ph.D in 1988. Her dissertation topic was the richly illustrated fourteenth-century encyclopaedia, *Le Miroir historial* that was made for the *dauphin* of France and is now kept in the Leiden University Library. From 1977-1983, she was part-time teacher of Manuscript Studies and Art History at the Tiele Academy in The Hague (now The Hague University of Applied Sciences). Except for an interval of four years doing research in London, she taught Medieval Art History at the University of Leiden (1979-1983, 1987-1993). In 1993, she was appointed Professor of Medieval Art History at the University of Amsterdam. She has had emeritus status since 2014.



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AC RACC|SOICITOR ARNOC|OSSOS
ALI[illegible] HERMOS

Jan Willem Briët

Keywords: comparison of medieval knowledge with modern-day medicine of Hypericum, Artemisia, Plantago, Mandragora, Tanacetum

A LATE MEDIEVAL PRINTED TEXT FROM THE DEVENTER ATHENAEUM LIBRARY

RECIPES IN AN HERBAL FROM 1497, DE ORTUS SANITATIS, DEVENTER, ATHENEUMBIBLIOTEEK 2000 E 45 KL

Chavannes-Mazel, C.A. and L. IJpelaar (eds.), *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600-1600*.
Amsterdam: Amsterdam University Press, 2022
DOI 10.5117/9789463726191_APPII

Abstract
The late fifteenth century herb book *Ortus Sanitatis* ('Garden of Health') is the last medieval encyclopedia of medical applications of products of nature. It is a summary of knowledge collected since the days of Hippokrates. Whether reading a passage in the *Ortus Sanitatis* or a present-day book on herbal use it seems doubtful how the author can be certain of the proposed effects. To study this question, we have chosen five herbs from the *Ortus* and researched the disorders for which they are still recommended today. Scholarly literature was obtained via Pubmed and the European Medicines Agency.

Late fifteenth-century herb books are based on the *Herbarius moguntinus,* or *Latinus,* and the *Gart der Gesundheit* ('Garden of Health') from 1484 and 1485 by Peter Schöffer, published in Mainz (see the chapter by Ellers, p. 58 ff.). Expanded with one hundred new plants and sections on birds, animals, fish and stones, it was published in 1491 as *Ortus sanitatis* by Jakob Meydenbach, once again in Mainz, the city where Gutenberg had also lived and worked. An exact copy of this book was published in 1497 by Johann Prüss in Strasbourg. Texts from the third edition, a copy of which can be found in the Athenaeum library in Deventer (Deventer, AB 2000 E 45 KL. *Dimensions 316 × 213 mm.*), are the topic of this intermezzo.[1]

I have chosen five herbs which are discussed in the *Ortus* and researched the disorders for which they are still recommended today. In so doing, I have limited myself to three modern manuals: *The Herb Bible*, *Drugs in Pots* and *Medicinal Plants of the World*.[2] In addition, I have consulted bio-medical articles to establish if there is scientific evidence for the beneficial effects that are claimed. Each section begins with a free translation of part of the Latin text in the *Ortus* dealing with the name and applications (*Operationes*) of the herb, which consists mainly of quotations from respected authors. This is followed by brief excerpts of relevant information from the herb books named above and closes with a random selection of information found in recent scientific literature.[3] The five herbs in question are St. John's wort, wormwood, broadleaf plantain, mandrake and feverfew.

1.
HYPERICUM PERFORATUM, SAINT JOHN'S WORT

***Ortus sanitatis*, chapter 516.**
It is called hypericum or scopa regia in Latin. A synonym for hypericum is saint john's wort, herba perforata. It is also called king's crown. Galen in book 8 of the Simplicium Pharmacorum in the chapter on hypericum in the Arabic translation: hypericum warms and dries and has fine parts. Dioscorides in the chapter on hypericum: it has tender flowers like those of a violet, black seeds shaped like barleycorns and smells like pine resin. It has sharply astringent and mixed characteristics.

Galen: it induces menstruation and urination. All parts of the plant are good for this, not just the seeds but also the fruit. But if applied when the leaves are still green, it can heal blisters caused by burns. And it will heal soft suppurating sores if placed on them dry. And the seed drunk with wine will cure the fourth-day fever (malaria quartana). *And drunk in this way for sixty days, it will cure sciatica. And if the juice is drunk with strong wine it is good for nosebleeds, stomach bleeding and for fever if drunk with water.*

Present-day use

Hypericum perforatum or St. John's wort is commonly known for its many medicinal benefits. The herb is still recommended today for the treatment of burns and grazes as a diluted tincture applied to a compress and placed on the wound or directly applied to the wound in the form of an oil. In the case of earache, the oil is applied to a wad of cotton wool and placed in the ear. It is said to be effective against bacteria and viruses and helps to drain toxins. It is recommended for various stomach and intestinal complaints. St. john's wort also helps for the treatment of depression and emotional problems during the menopause.[4]

Scientific research

The active ingredients of St. John's wort are well known. Twenty-nine trials have been carried out on the effectiveness of the herb for the treatment of depression in comparison with a standard anti-depressant and a placebo. Extracts of St. john's wort proved to be more effective than the placebo and equally effective as the anti-depressants, but with fewer side-effects than the latter. As a painkiller after the extraction of a wisdom tooth, it scored no better than the placebo. In two cases of its use in the treatment of foot ulcers in diabetics it seemed to be effective. In a systematic review of its use for menopausal complaints, it proved to be more effective than a placebo. It may also have a use as an insecticide. For years, the European Medicines Agency (EMA) has warned of the side-effects related to St. John's wort and for undesirable interactions with other medicines.[5]



2.
ARTEMISIA, WORMWOOD

Ortus sanitatis, chapter 39
Isidore: Artemisia is the herb that is associated with the goddess Diana. That explains why it is called Diana in Greece. Plinius in book 25: Artemisia which was formerly called Artemis is named, it is said, after the goddess, but it is also called Artemisia because king Mausolos, whose wife bore that name, wished it so. Dioscorides: There are three types of Artemisia. The first is called Artemisia monodos. It is the mother of all herbs. It bears a great deal of fruit and resembles absinth. Another Artemisia is called Tagetes. This one is tender. Its seeds are minuscule, and it has only one stem with many flowers. And this sort is called Tanacetum by the Greeks. And the third type is called Leptafillos. It grows in fields and in valleys. If you rub its flowers dry they smell like elderberry. And they are bitter. It is said of this type that it was discovered by Diana and that she pointed out its effectiveness by giving it to the centaur Chiron. That is why the plant is named after Diana, who is called Artemis in Greek and thus it was given the name Artemisia. It has a warming and drying effect.

Dioscorides: Artemisia has a strong laxative effect and eases and warms. Drinking an elixir of it eases female complaints, stimulates menstruation and the expulsion of the afterbirth and facilitates the birth of a dead fetus. It shatters stones and makes the urine flow again. Finely crushed and placed in the navel, it stimulates menstruation. If the juice is mixed with myrrh and placed in the womb it has this effect and of all the others named above. Three drachmas (a drachma weighs 3.4 g) *of the dried foliage taken as a drink eliminates illnesses due to residual material left in the womb after childbirth. A traveler who carries this with him experiences no fatigue. Demons flee from a house that contains it. Evil words and the evil eye are rendered harmless. Artemisia that is called Tagetes is good for pain in the bladder and painful urination, if two drachmas of the juice are drunk. A patient with a fever is given two cyathus* (a cyathus is 45 ml) *to be drunk with water. To cheer up a child, burn artemisia under the bed and allow the fumes to rise. This alleviates boredom and chases away nightmares. For nerve pain: if you boil the herb in oil, it heals miraculously well. Have someone who is suffering from pain in his feet eat the root with honey; it is unbelievable how powerful the effect is. The juice mixed with rose oil as a salve, rubbed in well, drives away fever.*

Present- day use
The Artemisia genus has more than two hundred species. *Artemisia absinthium*, common wormwood, is used traditionally to stimulate the appetite and digestion, and for gastritis and gall bladder complaints. It is used externally for skin problems. One of its active ingredients is thujone that causes hallucinations and acts as an aphrodisiac. Infamous as the liqueur absinthe, it was very popular in French-speaking countries in the nineteenth century in particular, when it inspired painters






De Herbis.

Capitulum.xl.


De Herbis

Capitulum.ccccxxxij.

Operationes.

and poets. Its addictive effect and the damage it did to the nervous system have brought the plant into discredit. It is no longer allowed as an additive to alcoholic drinks. Quite a bit is known about the effects of the active ingredients of various varieties of *Artemisia* and how they are processed by the body. The European Medicines Agency considers small amounts as safe; in small amounts it is probably not dangerous. But needless to say, it is no longer common practice to use it to chase out demons in adults or rid children of nightmares.[6]

Scientific research

Thujone is the primary active ingredient in wormwood. In a study it was compared with placebo to evaluate its usefulness for treating Crohn's disease and forty individuals took part in the trial. The conclusion was that *Artemisia absinthium* with a low concentration of thujone made it possible to lower the normal dosage of prednisone. The EMA has stated that wormwood is acceptable as a traditional herbal treatment, but is not a recognized medicine.

It is perhaps also useful for irritable bowel syndrome. The ingredient artemisinin has been isolated in a different Artemisia species, *Artemisia annua* (sweet wormwood) and at the moment this is the best medicine for the treatment of malaria. Unfortunately, in recent years the parasite has begun to develop resistance to it. In 2015, the Chinese chemist Tu Youyou received the Nobel Prize for her work on the applications of sweet wormwood.[7]

3.
PLANTAGO MAIOR, BROADLEAF PLANTAIN

***Ortus sanitatis*, chapter 332**

Plantago maior or Arnoglossa or five-vened or goat's tongue, called in Greek Arnoglossus (sheep's tongue). *Plantago because of its similarity to the sole of the foot. Serapion: in the book Aggregator in the chapter on irises, there is a reference to buck's tongue, thus plantago. And he underlines the authority of Dioscorides who said that it looks like the tongue of a lamb. In Greek agnus is called arnon* (lamb or sheep), *and lingua, glossos* (tongue). *And it is also called Hepta Pleura, seven-ribbed, because its leaves have seven ribs; hepta is seven in Greek and pleura means rib.*

Galen in boek 6 of the Simplicium Pharmacorum, the chapter on Arnoglossa or Plantago maior: this plant has a complex character. It is wet and cold and has something astringent like cold and dry earth so that it both cools and dries. And it heals difficult sores, both recent and older ones. Pandecta in the above-mentioned chapter: Arnoglossa is the useful Plantago and is good for drying wounds and cleaning away pus and rotting. It strengthens the liver, fights holy fire (erysipelas) if that has taken hold of the body. Dioscorides in the chapter on Arnoglossa: it is useful in the case of dog bites. And for swellings and pustules if mixed with salt. If the leaves are boiled in vinegar and salt, it helps dysentery. It works best for edema when cooked with lentils and then applied. And it is also helpful if someone has an epileptic or asthmatic attack. Gargling with the juice will heal sores in the mouth.

Present day use
There are eight species of the genus found in British flora. One of those is broadleaf plantain, plantago major. Plantain leaves have a calming effect. They are used for problems in the respiratory passages, the urinary passages and the alimentary canal. Hot tea made from dried leaves can be used for colds, hay fever and asthma without needing to gargle with it. Bruised, small fresh leaves are good for the stings of nettles, wasps and other insects. Given these applications, it is easy to understand its usefulness for erysipelas, a painful and itchy skin infection. Broadleaf plantain is used to staunch blood and stimulate urination, also for bladder infections, blood in the urine and hemorrhoids. In Colombia it is used for snake bites and infections.[8]

Scientific research
There have been more than two hundred studies carried out on *plantago major*. The active ingredients of broadleaf plantain are known. One of the studies came to a positive conclusion on the use of broadleaf plantain for irritable bowel syndrome. For pain after the extraction of a wisdom tooth, it did not prove to be any better than the placebo. Although plantain was known in the Middle Ages as a wonder drug used for innumerable afflictions and disorders, it no longer has a place in modern medical practice.[9]

4.
MANDRAGORA OFFICINARUM AND *MANDRAGORA FEMINA*, MANDRAKE

***Ortus sanitatis*, chapters 276 and 277**
Male Mandragora, Mandragora officinarum. Isidore: There are two sorts, the male and female. This section is on the male type. In Latin it is called evil of the earth: the root has the form of a human. If the root is boiled in white wine and is given to someone who must have his body cut in order to heal him, the person will fall asleep and feel no pain. Shepherds eat it and fall asleep promptly. Avicenna: Mandragora is cold to the third degree and is wet.

Mandragora femina, Mandragora autumnalis. Serapion says on the authority of Dioscorides: the colour is black and it is called Lactuca. Because the leaves look like those of Lactuca and are greasy with a strong odour and they lay spread over the ground and the heart of them looks like a medlar; that is the lofach, the fruit.[10] *This is lemon-coloured and has a pleasant smell. This type of Mandrake has no stem.*

Serapion: And if one takes an amount of two obols (an obol is 1/6 of a drachma, about 0.6 g) *of the juice of the root with mead, one will regurgitate mucus and gall, just as after taking hellebore, but if you drink more, you will die. And the bark of the root is an ingredient of medicines for the eyes and in suppositories. And if you take half a weight of an obol and introduce it down below, it will induce menstruation or the birth of a child. And placed in the anus, it works as a sleeping pill. And if ivory is boiled with the root for six hours, the ivory will be so soft you can shape any figu-*






De Herbis

Operationes.

Capitulum.cclxxvi.


De Herbis

Capitulum.cclxxvii.

Operationes.

Capitulum.cclxxix.

re from it that you might wish. However, the outer layer of the root and the root itself should not be boiled with wine. Rather, take one amphora (26 litres) *of sweet wine and put three large roots in it and give it as a drink in the amount of three obols when it is necessary to cut or burn a patient, so that the patient does not feel the cutting or burning because he is asleep; but if you give him too much he will become unconscious. Many give mandragora to their sweethearts.*

Present-day use

The magical power hidden in the *Mandragora* or mandrake is colourfully described in the Herbarium of Apuleius Platonicus (see page 136). Recent sources no longer mention *Mandragora*. The narcotic and pain-killing effect stems from the presence of hyoscyamine and other plant toxins. Mandrake is apparently still sold in health food shops for its aphrodisiac effect, which explains the phrase 'many give mandragora to their sweetheart'. The source for the belief in its aphrodisiac qualities is not clear. It may end up poisoning the recipient, however, if *Mandragora officinarum* and *Mandragora femina* are confused with a different species of mandrake, the *Mandragora peltatum*.[11]

Scientific research

The two types of *Mandragoras* have the same active ingredients. Publications on mandrakes have concentrated primarily on poisoning. It seems unlikely that there will be many medical applications for it outside of alternative medicine. It is not discussed separately in the database of the EMA.[12]

5.
TANACETUM (CHRYSANTHEMUM) *PARTHENIUM*, FEVERFEW

TANACETUM VULGARE, TANSY

***Ortus sanitatis*, chapter 464.**

Dioscorides: Tanacetum is a type of Artemisia, called Tagetes. It grows in high areas in the region of the Mediterranean Sea. Its flowers are full of honey, tender and gay. Nonetheless, it is called Tagetes or Tanacetum in Greek, and by some Athanasiam (immortal) *or Thanasiam* (the origin of the English *tansy* for *Tanacetum vulgare*).

Dioscorides: Artemisia, which is called Tanacetum or Tagetes, is helpful for bladder pain and painful urination. For fever, give two drachmas of the juice with wine; in a drink of warm water, two cyathus. Drunk with soft fat and vinegar for at least three days, it will relieve pain in the hips. And to cheer up a child, you should burn the herb. The incense and vapours banish all ills and make the child smile.

Present-day use

There is some doubt about the names given in *Ortus*. The four known medicinal types of Artemisia are different from what is now called Tanacetum or Chrysanthemum. The illustration looks like *Tanacetum vulgare*.[13] In Dutch, *Tanacetum vulgare* is called 'farmer's worm herb' (*boerenwormkruid*) because it repels worms, which is not mentioned In the *Ortus,* but it is in Lucretius's *De rerum natura* (Bk. 1, 936). Tea made from the herb is good for digestion. *Tanacetum parthenium* is well known as a remedy for headache and migraines. The fresh leaves can be eaten preventatively every day, with lettuce for example. Both sorts are known to be anti-inflammatories for treating arthritis or sciatica. For colds, a hot infusion will reduce fever and swollen mucous membranes. *Tanacetum parthenium* has been used since antiquity to induce labour and combat puerperal fever, which explains another name for the herb in Dutch, 'mother's herb' and 'Mutterkraut' in German.[14] Nowadays, it is recommended to avoid its use during pregnancy.

Scientific research

The beneficial active ingredient is parthenolide. A recent study using extracts of *Tanacetum vulgare* was undertaken to examine not the effect on treating worms but, rather, on bites of the Aedes Aegypti mosquito, which carries the dengue virus. It was shown that it offers equal protection against mosquito bites as the insect repellent deet. *Tanacetum parthenium*, feverfew or bachelor buttons, has been approved by the EMA as self-medication for the prevention of migraine attacks, but not for longer than two months. According to the


Tractatus

Operationes

Capitulum.cccl(xi)

Operationes

Ortus it is effective for pain in the hips. However, it does not help against rheumatoid arthritis and it does sometimes have side effects.[15]

Conclusion

The European Medicines Agency has judged Hypericum, Artemisia absinthium (wormwood) and Tanacetum. On their own, or in combination with conventional medicines, the active ingredients of these herbs can be poisonous or cause side effects. Caution is therefore recommended. It is important for herbal medicine, just as for conventional medicine, to demonstrate the effects and safety of the products by means of double-blind, controlled studies with standardized and well-defined extracts. It is clear from EMA publications that work is done on this at the moment.[16]

Research on herbs has contributed a great deal to modern medicine. More than one hundred conventional medicines are derived from plants. The *Ortus sanitatis* recommends many applications, however, that are unlikely to be effective in view of current knowledge of the pharmacologically active components, or for which there is not sufficient evidence. In summary, there is a great deal to gain from the Ortus but it also requires a great deal of careful weeding.[17]

p. 319 ▸▸
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European Medicines Agency: www.ema.europa.eu/en.

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Dr. Jan Willem Briët (1940-2022) was a doctor of tropical medicine in Zambia, after which he worked as a gynaecologist in Deventer and at the Institute for Medical Education, University of Groningen. Since his retirement, he has been active as a volunteer at the Deventer Library (Atheneneum- bibliotheek). During the past years, he has focused on medieval herb books, in particular the *Hortus Sanitatis* by Johann Prüss and the *Tacuinum Sanitatis* by Ibn Butlan.

meditare: q̄ q̄n vultū aīal̄ emittit tacbȳna. quod quidem experientia sciri potest.

C ¶ Alia species que noiatur narcȳ administratur a cirurgicis quando volūt membrū aliqđ incidere. et quādo bibitur solatrum quod dicitur suffocans ei est tyriaca.

A ¶ Et idē aucto. Rasis. dixit mihi quidā ex antiquis babylonic. q̄ quedā puella comedit q̄n q̄ poma mādragore. et cecidit sincopisata. et tota effecta est rubicunda. et quidam superueniens effudit super caput eius a quam nimis donec surrexit.

¶ Et ego vidi homines qui sumpserūt de radice eius causa impinguandi. et accidit eis sicut accidere solet hoibȳ ingredientibȳ balneū z bibentibȳ post ecirū vinū multū. Hā factus fuit vultȳ eoz̄ nimis rubicūdus. ¶ Et idē auc. Dyasco. Radicē mādragore multū dāt ad amorē.



spēs mandragore non habet stipitem.

Operationes

¶ Mandragora fortissimi odoris est ab hoī mine iciuno non colligitur. A

¶ Utriusq̄ vis vna est. hec cum polenta trita feruores oculoz̄ z dolores auxilium sedat. B

¶ Radix eius cū aceto trita et illita ignem sacrum curat. C

¶ Auicē. Mādragora somnū puocat. et q̄n ponitur in vino vehemēter inebriat. multusq̄ vsus cȳ z odoramētū faciunt apoplexiā. D

¶ Lac cȳ euellit lētigines z pānū sine mordicatiōe. soluēdo aūt educit colerā z flegma. E

¶ Radix eȳ trita z ū caceto imposita super berisipilam sanat eam. semen eius matricē mundificat. vel vomitum prouocat. F



LIST OF ILLUSTRATIONS

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ABBREVIATIONS

Alnwick, Alnwick Castle, CDN: Collection of the Duke of Northumberland
Amsterdam, RMA: Rijksmuseum Amsterdam
Amsterdam, UB: Universiteitsbibliotheek (University Library)
Baltimore, WAM: Walters Art Museum
Bamberg, SB: Staatsbibliothek
Bologna, UB: Università di Bologna (University Library)
Boston, MFA: Museum of Fine Arts
The Hague, KB: Koninklijke Bibliotheek (Royal Library)
The Hague, MMW: Museum Meermanno, formerly Museum Meermanno-Westreenianum. Now: House of the Book
Deventer, AB: Atheneum Bibliotheek (Atheneum Library)
Eton, Windsor, ECL: Eton College Library
Florence, BML: Firenze, Biblioteca Medicea Laurenziana
Ghent, UB: Universiteitsbiblioteek (University Library)
Gotha, UFEG: Universitäts- und Forschungsbibliothek Erfurt/Gotha
Göttingen, NSU: Niedersächsische Staats- und Universitätsbibliothek
Kassel, UB: Universitätsbibliothek, Landesbibliothek und Murhardsche Bibliothek der Stadt Kassel)
Krakau, BC: Kraków, Biblioteka Czartoryskich
Leiden, NBC: Naturalis Biodiversity Center
Leiden, UB: Universiteitsbiblioteek (University Library)
London, BL: British Library
London, Sam Fogg: Private collection Sam Fogg
London, WL: Wellcome Library
Los Angeles, JPGM: J. Paul Getty Museum
Mettingen, DCL: Draiflessen Collection (Liberna)
Munich, BSB: Bayerische Staatsbibliothek
Napels, BN: Napoli, Biblioteca Nazionale
New York, PML: Pierpont Morgan Library (and Museum)
Paris, BNF: Bibliothèque Nationale de France
Paris, ML: Musée du Louvre
Paris, MNHN: Musée National d'Histoire Naturelle
Rome, BAV: Roma, Biblioteca Apostolica Vaticana
Sankt Gallen, SB: Stiftsbibliothek
Utrecht, MCC: Museum Catharijneconvent
Utrecht, UB: Universiteitsbibliotheek (University Library)
Vienna, ONB: Wien, Österreichische Nationalbibliothek
Wolfenbüttel, HAB: Herzog August Bibliothek
Wolfenbüttel, SA: Staatsarchiv

r: recto, at opening the right page, the front of the folio
v: verso, at opening the left page, the back of the folio
Measurements (in cm) are given if considered relevant to the clarity of the image

The authors are applying the present scientific plant names. This system of nomenclature was initiated by Linnaeus in 1753 (*Species Plantarum*). The letter L., or any other abbreviation following a scientific name, refers to the author of that name.

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Pseudo-Apuleius complex, France, 10th century. Dim. 235 x 170 (190 x 140 mm). The Hague, MMW 190 D 7, ff 21v-22r. F. 21v: *herba isatis* (*Isatis tinctoria* L., woad); F. 22r: *herba scordeon* (*Allium vineale* L. crows garlic), and *herba verbascum*, *phlommos* (*Verbascum thapsus* L., mullein)

Scordeon· Allium

NOMEN ERBAE· SCORDEON·

Herba scordeon trita cũ oleo Laurino subacta ad
dolorem· Item herba scordeon coquit̃ in sero ad
cum uino· Ipsa aut̃ cum tusa in piga imponitur·
Item herba scordeon alliga ta circa corpus homi
nis· tollit cotidianas· siue ter tianas
SISER PENTIS PERCUSE RIT·
Herba scordeon trita cum oleo Laurino subac
tatollit dolorem·



Phlomos
Verbascum

NOMEN HERBA VERBASCUM
Agrece dicitur flõmon
Alii Lignites
prophete hermonubdos
Daci Diessichel
Egipci· Anachal

Scordium verbascum

COLOPHON

Front cover
Apuleius Platonicus, Herbarium and other texts, late sixth century.
Dim. 270 x 200 mm, (full page)
Leiden, UB MS VLQ 9, fol. 34r: *Artemisia monoclonos* (wormwood).

Back cover:
Jacob van Maerlant, *Der nature bloeme*, first quarter fourteenth century. Dim. 261 x 185 mm (full page). London, BL Add. MS 11.390, fol. 77v. Right column. Text and imagery of among others the linden tree and the vineyard. See also pp. 194 and 197.

Clavis Kunsthistorische Monografieën

The publication of the English edition *The Green Middle Ages* has been made possible by a grant from the Stichting Art, Books and Collections, The Netherlands. The earlier Dutch edition was sponsored by the Prins Bernard Cultuurfonds, the M.A.O.C. Gravin van Bylandt Stichting, and the De Gijselaar-Hintzen fonds.

Originally published as:
Claudine A. Chavannes-Mazel & Linda IJpelaar (red.), *De Groene Middeleeuwen. Duizend jaar gebruik van planten 600-1600*. Uitgeverij Lecturis bv, 2019.
ISBN 978 94 6226 297 3

Translation:
Elisabeth Daverman, Elizabeth Dijkstra, Arianne Miller-van der Klooster, the authors

Cover design and layout:
Studio Frederik de Wal

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ISBN 978 94 6372 619 1
E-ISBN 978 90 4855 774 5
DOI 10.5117/9789463726191
NUR 684



How 'green' were people in late antiquity and the Middle Ages? Unlike today, the nature around them was approached with faith, trust and care. The population size was many times smaller than today and human impact on nature not as extreme as it is now. People did not have to worry about issues like deforestation and sustainability.

This book is about the knowledge of plants and where that knowledge came from. How did people use earth and plants in ancient times, and what did they know about their nutritional or medicinal properties? From which plants one could make dyes, such as indigo, woad and dyer's madder? Is it possible to determine that through technical research today? Which plants could be found in a ninth-century monastery garden, and what is the symbolic significance of plants in secular and religious literature?

The Green Middle Ages addresses these and other issues, including the earliest herbarium collections, with a leading role for the palaeography and beautiful illuminations from numerous medieval manuscripts kept in Dutch and other Western libraries and museums.

Edited by Claudine A. Chavannes-Mazel, professor emeritus of Art History of the Middle Ages (University of Amsterdam) and Linda IJpelaar, art historian.

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